Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Company, Inc.

MORRIS BUCK, *Managing Editor*

Volume 66 New York, Saturday, September 5, 1925 *Number* 10

Giving the Street Car Its Due at the Atlantic City Convention

PRESENT indications are that the exhibit to be held in connection with the 44th annual convention of the American Electric Railway Association at Atlantic City next October will be the finest ever held. Certainly more space will be utilized than at any previous show, either of this or any other similar organization.

The bus will be well represented. About 40 per cent of the total space will be devoted to the display of buses and bus accessories. That is as it should be. The bus is the latest newcomer in the field, hence it is attracting the most attention of any one thing. Manufacturers who are exploiting it feel that they still have to do much work in order that it may obtain proper attention from electric railway executives.

But it must not be taken for granted that the bus will dominate the convention or the exhibit. An entire session of the American Association will be devoted to the discussion of the electric railway car, its design and its uses. The electric car, its operation and its maintenance, will also be the basis of the leading discussion at nearly all the meetings of the affiliated associations.

Then, too, it is practically certain that electric railway cars will occupy a prominent place in the exhibit. Last year it was the feeling that they had been pushed too much into the background. But this year the exhibit committee has made arrangements for the construction of a temporary track on Arkansas Avenue so that the display of cars will be facilitated. It is understood that the leading manufacturers and several operating railways are making arrangements to display cars of the most recent design, illustrating the best advances in the art. For those who have felt that the street car is well standardized and that little can be done to improve it there will be some surprises in store. It is to be hoped that the space available will be crowded with as many cars as it is possible to place on it, representing as many diverse designs as can be shown. Only in that way can the delegates learn what the car can do and how much it has been improved in most recent times.

One Reason that Sometimes Underlies the Unfairness of the Public

QUESTIONS left to any large group of Anglo-Saxon people, it has been stated, will eventually be fairly and reasonably decided. Probably that statement is no more accurate than are most generalities. Certainly not all decisions made in the past by the public concerning the transportation industry have been just and reasonable. To dismiss the matter with the thought that the public is habitually ungrateful to its servants, however, is a dangerous practice. Often the unfairness of the people has been in reality an awkward and round-about attempt to retaliate for something the company has done.

When the people of a community take a stand antagonistic to the local railway, it is well to look carefully to the reason. The cause may be remote and insufficient, but it is seldom that malice alone is behind the attitude of the public. Even the most rabid political demagogues find it difficult to arouse people against the railway unless the latter places a convenient weapon in their hands.

Minor sins of omission or commission by the transportation agency often result in serious unfairness on the part of the public. For instance, a certain electric railway in the East makes a practice of allowing no passengers on cars running over the regular route when they are pulling in after the morning rush. Cars empty save for trainmen reclining comfortably inside go by waiting people. If the manager of that railway should stand for a few moments among groups of such waiting people, he would soon find out one reason why he finds it difficult to secure a needed increase in fare.

Unreasonable and unfair are not too strong adjectives to describe such an attitude. Yet, after all, it is the natural human attitude—and we cannot change human nature. When a railway man finds himself thinking that the attitude of his public is unfair, let him pause a minute, and review in his own mind the things that the railway has done, to see if, perchance, the explanation of the antagonism does not lie there.

Combining Iowa and Wisconsin Meetings Would Strengthen Both Associations

WITHIN the past few weeks two electric railway meetings have been held in adjacent states. In this issue is reported the recent operators' meeting of the Iowa Electric Railway Association, held at Mason City, on Aug. 27 and 28. Two weeks ago, in the Aug. 22 issue, appeared a report of the railway section meeting of the Wisconsin Utilities Association, which was held at Wausau on Aug. 13 and 14.

From an analysis of the two programs and discussions it is apparent that there is little occasion for maintaining state boundaries for such activity. Practically everything that transpired at Wausau would have been equally interesting to the Iowa railway men, and *vice versa*. Furthermore, the value derived from the meetings would have been enhanced by an exchange of experiences between the railway men of the two states.

There seem to be many reasons in favor of combining these two state meetings, which for several years have been held only a few weeks apart. By including also the states of Illinois and Minnesota, which at the present time have no exclusively railway local activity, a combined session could be made representative of the entire upper Mississippi Valley. It could compare favorably with several sectional associations in other parts of the country where electric railway men of several states have joined together to their mutual advantage.

Leaders in the industry are agreed that a greater degree of co-operation and interchange of thinking is essential to the industry's ultimate triumph over its difficulties. A group meeting such as is suggested would tend to draw the many important railway properties in this district closer together.

Existing state utility organizations find their greatest opportunity along the lines of publicity and legislative activity. This work is efficiently handled by state organizations working in co-operation with national bodies. But the greater part of this activity is carried out through committees rather than in general meetings. The suggested grouping of railway men does not contemplate any departure from the existing state utility organizations. It would merely supplement their work by affording an opportunity for interchanging purely railway management, operating, and technical experience. It would also serve as an excellent medium for bringing about greater co-operation with the American Electric Railway Association.

Philadelphians May Ride in Railway-Operated Taxis

APPARENTLY the Philadelphia Rapid Transit Company is thinking of going into the taxicab business. Mr. Elmquist, former chairman of the Federal Electric Railway Commission, did not say this in so many words in his recent testimony at the fare hearing in Philadelphia, but this was the import of his words. He saw no reason why the taxi business should not be entered by the railway. At first glance the suggestion may seem far afield, but is it? If the transportation profession is to keep abreast of the time then it cannot be expected that the electric railways will remain content to provide only a portion of the transportation service required in this modern age. In fact, the operation of taxis by the railway is merely an extension of the de luxe service idea to which some railways have already resorted, except that the taxi is not confined to a fixed schedule and a particular route.

The matter has greater significance than merely news, greater significance than an idea coming out of Philadelphia. Where the single tariff prevails, four or five people can ride for short distances in taxis almost as cheaply as by street car. Moreover, where speed is a consideration the taxi is more attractive than is the street car. It is not alone in the big cities that the taxi flourishes. Even the smaller cities have their taxi services, some of them exceedingly well organized. This, of course, takes no account of the future possibilities of the three-wheeled taxis intended to carry two passengers and soon to be placed in service in American cities. These vehicles have been very successful in Europe.. It gets the railways nowhere to harp on the point that many who ride in taxis can ill afford it.

Not many, perhaps, will be found to agree at this time with the idea that the railways go into the taxi business, but the news coming out of Philadelphia means, if the plan goes through, further unification of transit there, for the company will then have under its control the subways, the elevated lines, the surface lines, the buses and to a limited extent the taxis. The best of the present taxi services in Philadelphia will probably survive the competition if the railway goes into the taxi business, for it would be economically unsound for the P. R. T. to attempt a rate for its vehicles that would not from the inception of the service prove profitable.

Electric Railways Lead in Low Interest Rates

RAILWAY MEN sometimes feel that the electric railway industry is not popular with investors and that the electric roads must stand pretty well down the list of the utilities when the amounts of issues of new securities are concerned. It is encouraging that in a recent compilation of statistics on public utility security issues during 1924 the lowest interest rate for any class of security was obtained by the electric railways. As to quantity, in 1924 the electric roads sold in par value of securities more than three times either the gas companies or the water companies and nearly twice as many as these two utilities combined. These figures, given in an interesting article on "Public Utility Financing, 1919-1925," by Herbert B. Dorau in the *Journal of Land and Public Utility Economics* for July, are based on the monthly records of new capital flotation published in the *Commercial & Financial Chronicle*. In the comparisons just mentioned steam railroads are not included by Mr. Dorau, although in some of his other tables he gives some steam railroad statistics.

As with all statistics, the facts can be fully understood only with some explanation. Thus, the value of electric railway securities issued in 1924 ($103,268,000), though more than three times that of any other year since 1919, represents only 6.8 per cent of the total of utility issues during that period. One reason that it is so much larger than the total of either the water companies or gas companies is that much of the water development is done by municipalities and the greater part of the gas development by combined electric and gas companies. This latter type of property led all the other utility groups in per cent of securities issued, the second being the purely electric companies and the third the telephone and telegraph companies.

Another reason for the low interest rate secured by the electric railways was that they alone issued equipment trust certificates. These rates were 5.45 per cent as a weighted average yield and 5.69 per cent as a simple average yield. It is one of the distinct advantages of electric railways that the nature of the property permits the issue of equipment trust certificates on a considerable part of the new equipment required by a company. The returns at which electric railway securities of other kinds, such as debentures, notes and bonds had to be sold were not so favorable, when compared with those of the other utilities.

Another impressive feature of the statistics of Mr. Dorau and the *Commercial & Financial Chronicle* is the rapidity with which public utility security issues as a whole have come to the fore as favored forms of investment. This is evinced in a table of total corporate new financings in the United States. These are divided into four classes, namely, public utilities, steam railroads, industrials (including iron, steel, coal, copper, equipment, motors, accessories and other industrial and manufacturing) and other corporate entities (including oil, real estate, rubber, shipping and miscellaneous). Of these four groups the public utility issues represented of the total in 1919, 16.9 per cent; in 1920, 16.7 per cent; in 1921, 28.1 per cent; in 1922, 31.9 per cent; in 1923, 34.9 per cent, and in 1924, 39.8 per cent. This growth is still continuing, because during the first quarter of 1925 new issues of public utility securities represented in par value 45 per cent of all corporate issues of record.

New York Railways Designs Bus

Corporation Develops One-Man Two-Man Type, Patterned Along Street Car Lines, with Low Floor and Short Turning Radius—Front-End Drive Is Used, and Body and Rear Wheels Are Easily Detachable from the "Power Plant" and Control in Front

This Bus Recently Developed by the New York Railways for Short Distance Riding Has an Exceptionally Low Floor and a Front-End Drive

WHEN the management of the New York Railways Corporation decided to bid for bus franchises in New York City, it made a careful study of the conditions under which these buses would have to operate, the kind of traffic sought and the situation at its shop in regard to means for maintaining these buses. After a careful survey along these lines, the following were found to be the principal factors controlling the type of bus to be employed:

The first of these was the width of streets. Most of the streets over which the company proposed to bid for franchises, in fact, most of the avenue streets in New York City, have a maximum width between curb lines of 60 ft. This meant, in the opinion of the management of the New York Railways, that it would be very desirable to have a bus which could be turned on a street 60 ft. wide without backing. Backing meant delay to other traffic on the streets. The only alternative to backing was to loop the car around a block, but with the traffic conditions as congested as they are in New York, this often would mean additional delays.

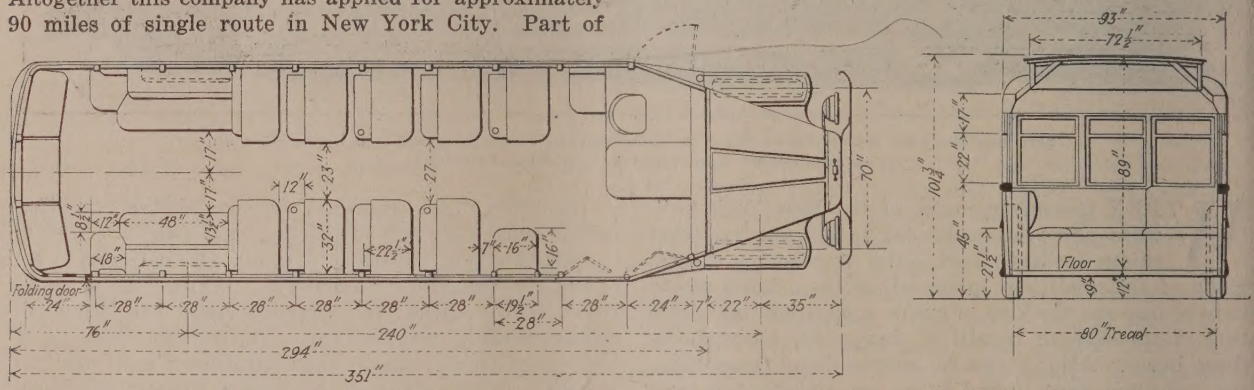
A second factor considered important was that of ease of access to the body of the bus, preferably a body whose floor was not higher than 12 in. above the street level, so as to avoid the necessity of steps on the outside, or a well or ramp within the body of the bus. A very large amount of the business on the existing conduit lines of the New York Railways is short-distance traffic, and to encourage this business it has been the policy of the company always to make its cars easy of access to intending passengers. Thus, for a long time on Broadway, the company used the so-called center-entrance stepless car. During the last year these cars have gradually been withdrawn until now no more are in operation on the conduit lines of the New York Railways, but they have been taken off for other reasons than the fact that they were stepless. The principal reason has been because a very large proportion of the rolling stock of the company has been of the end-entrance type, and the use of two such dissimilar types was confusing to both motormen and public. Another reason was that the doors of these center-entrance cars are always kept closed except when the car was at a stop, and for the slow pick-up service on Broadway it was thought that this discouraged patronage. In consequence, double-ended cars with large open platforms and open cars in summer are now being run on Broadway. With its proposed bus the company felt that entrance doors would be desirable, but it also felt that any other means available for making the car easy of access, such as low body, wide entrances, and a rear entrance and exit, to be used if necessary, were most desirable.

This Interior View Gives a Good Idea of the Ample Headroom Obtained by the Monitor Deck

A third factor of importance in the design of the bus to be used by the New

York Railways Corporation was in connection with maintenance. The railway practice of the company, when equipment goes wrong, is to take the car to the shop, remove the body and substitute good equipment for that which is in bad order, then return the car to the line as soon as possible. Where the damage is to the car body, of course that has to be sent to the repair shop, but a great majority of trouble occurs to the equipment on the truck or such equipment on the car body as can easily be taken from it. With this experience, the company thought that it would be very desirable, in its new design of bus, to have a design in which the body could quickly and easily be detached from the driving part of the equipment.

The company has therefore developed a single deck bus which was given its first trial run in New York on Aug. 21. This bus is the property of the Manhattan Surface Coach Company, Inc., the subsidiary of the New York Railways Corporation which will operate its bus routes if the necessary franchises are obtained. Altogether this company has applied for approximately 90 miles of single route in New York City. Part of these routes are on streets now operated by the cars of the New York Railways, but they are the less important routes of the company.



At Left, Plan and Seating Arrangement of New York Railways Bus. At Right, Cross-Section of Bus Body

New Bus Possesses Advantages Cited

An examination of the bus during its trial runs in New York last week shows that it possesses the three advantages mentioned at the beginning of this article. It can be turned on a radius of 29 ft. 5 in., its floor is level and only 12 in. above the surface of the street, and the body and rear wheels can be detached from the motor and front wheels by removal of four bolts and in not longer than 30 minutes. This has necessitated, of course, front wheel drive, but the engineers of the company have satisfied themselves that there is no difficulty on this account from loss of traction. It is believed that the bus will accelerate as rapidly as with rear wheel drive. It is also claimed that this design will steer more easily.

TABLE OF PRINCIPAL DIMENSIONS, NEW YORK RAILWAYS BUS

Length over all	29 ft. 3 in.	Front overhang of power plant	35 in.
Width over all	7 ft. 9 in.	Floor height from ground	12 in.
Height over all	8 ft. 5½ in.	Headroom	7 ft. 5 in.
Length of body	24 ft. 6 in.	Aisle width	23 in.
Wheelbase	240 in.	Seat centers	28 in.
Rear wheel gage	80 in.	Width of doors	24 in.
Front wheel gage	70 in.	Turning radius	29 ft. 6 in.
Rear overhang of body	6 ft. 4 in.	Weight unloaded (est.)	14,000 lb.
Road clearance	9 in.		

The mechanical equipment is based on the principle of the direct front-wheel drive, developed by the engineers of the Aeromarine Company which has placed on the market the type of bus known as the "Uppercu Coach." Drive systems of this type are still in use after sixteen years of service in private coaches.

The construction work on the New York Railways bus was done at the plant of the Aeromarine Plane & Motor Company, Keyport, N. J.

The Bus Body

The rear wheels of the bus are mounted on the body framing and support it by means of 60x4-in. semi-elliptical springs, with an auxiliary of the coil type. The front springs are 67x5-in. size. The suspension is unusually flexible, so much so that cushion tires are installed on the cast-steel disk-type wheels. Goodrich semi-pneumatics are used, 36x7 front and 36x10 rear.

The body design purposely follows street car lines. The body framing is entirely of steel. The floor is of truss plate construction with pressed-steel box posts, placed on 28-in. centers and a monitor type roof with window type ventilators. Sheathing on the sides is of Plymetl while the roof material is Haskelite. The Hale & Kilburn seats, which are upholstered in leather, are spaced to correspond with the side posts and are placed on either side of a center aisle, which is 23 in. wide at the seat cushions and 27 in. wide at the top of the seat backs. Windows are of ¼-in. plate glass, the lower sections of which are of the raised sashless type in felt runners. Roll curtains are also provided on all side windows. In the interior there are sixteen 21-cp. lamps fitted with Ivanhoe-Miller shades, placed eight on a side, on every other carline. Entrance and exit for passengers are provided for by two service doors at the front, each 24 in. wide, for one man operation, and an additional door at the rear on the right (24 in. wide) when a conductor is used. All of these doors are controlled by National pneumatic door engines. In addition, there is a service door for the driver on the left-hand side of the bus.

Power Plant

One of the outstanding mechanical features of the design, as already mentioned, is the detachable power plant and drive mechanism, which can be removed from the body by taking out four bolts. Another is the arrangement of the power plant and drive system which is entirely different from the conventional layout. Instead of the engine being placed next to the radiator,

it is the last in line from the fin and tube type radiator, the flywheel being in front of it. About 24 in. of the engine, which is a Model 6-A Waukesha, extends into the front end of the body proper. This is covered by asbestos-lined metal with a sliding top to permit easy access to the spark plugs, Westinghouse air compressor, and Schebler S-1½ carburetor. Fuel is carried in a 40-gal. tank under the body below the driver's seat, and filled from the left-hand side. The vacuum feed is of the Stewart-Warner type. Attached to the engine flywheel is a solid shaft that connects directly to one side of a Borg & Beck 14-in. single plate clutch located immediately in the rear of the radiator. The main drive from the clutch is through a hollow shaft which transmits the power to a worm mounted at the rear of a four-speed transmission. From the worm gear, the drive to the two front wheels is by short shafts with universal joints at either end. The universal at the wheel is a special ball-type joint that permits 52 deg. turning angle for steering. A Ross type 1 steering gear is used.

Braking Equipment

Braking is provided in three ways, as follows: by pedal on the front wheels, by air on all four wheels, and by hand lever on the rear wheels. Braking on the front wheels is through a drum located on the main driveshaft, while each rear wheel has an independent set of brakes. Air for operating the Westinghouse air brakes is supplied by a 6-cu.ft. compressor, driven by a V-belt from the pump shaft.

Electrical appliances consist of a Leece-Neville 12-volt starting motor and 500-watt generator, two Exide storage batteries of 325 amp.-hr. capacity, Remy special bus panel with fuses and switches. Signal buttons, buzzers and signal bell were furnished by Electric Service Supplies Company.

The low floor height permits an exceptional amount of headroom, 89 in. without unduly raising the center of gravity or giving an excessive over-all height. In fact the over-all height is but 8 ft. 5¾ in.

The principal dimensions of the bus are given in the accompanying table.

Atlanta Is Selling Its Service

"GO BY STREET CAR" has been the theme of a campaign started last spring and carried forward steadily through the hot summer months. It has increased the number of passengers carried by the Georgia Railway & Power Company, Atlanta, Ga., and proved the value of a campaign of this kind when rightly handled. The campaign is interesting not only in the methods used but in the wide range and timeliness of the subjects selected to drive home the value of going by street car. It was, indeed, this local color that was largely responsible for success.

In the first place, the campaign was carried on through three mediums—the car card, the company's publication, "Two Bells," and straight newspaper advertising, although the latter method was not used as extensively as the two first. In the second place, the campaign was directed at two classes of people—the occasional riders of the street cars and the regular customers of the railway. In the third place, the campaign was centered entirely around a slogan—"Go by Street Car." Not a single piece of advertising was done that did not culminate in the slogan. Every piece of copy was tied up intimately with some local place, community situation or timely event.

As an illustration of "place" advertising in the campaign, early last spring the flowers, particularly the dogwood blooms, were especially attractive in one of the newer suburbs of the city reached by street car, the Druid Hills section. So the company ran this advertisement in the press and on its placards:

Dogwood is all in bloom in beautiful Druid Hills. See it while at its best, and—go by street car.

In this way hundreds of people were induced to ride to Druid Hills on Saturday, Sunday and other afternoons during the spring season.

Here are some other "place" advertisements used by the company:

Lakewood Park offers an ideal picnic place. Free motion pictures every night and every form of amusement. Have a picnic there, and go by street car.

See the Confederate Memorial at Stone Mountain—the greatest carving of this or any generation. Cars leave the corner of Pryor and Alabama Streets every hour. Go by street car.

Get acquainted with Atlanta's institutions of learning, Emory and Oglethorpe Universities—two of the leading schools of the South. Both can be reached by street car. Go by street car.

Many other advertisements of a similar nature were used and are still being used, for the campaign has by no means ended. But this will give an idea of how place advertising can be used to advantage based on points of interest about the city.

In "situation" advertising, based upon local conditions, one of the best examples was used early in the campaign and has been effectively repeated. It is based upon the crowded traffic conditions in Atlanta and the great scarcity of parking places in the downtown district. It follows:

Don't hunt for hours for a parking place and walk for blocks to your favorite store. Save yourself trouble and go by street car.

Here are some more:

Save time and shop by street car.

Don't be late to the show through hunting a parking place. Be on time and go by street car.

Does heavy traffic get on your nerves? There are no traffic signals to watch when you go by street car.

In this way the company built up street car use through taking advantage of local conditions—situations peculiar to Atlanta.

Of "timely" advertising, here's one of the best. When the city swimming pools were opened the company ran this advertisement in the papers and on its car cards:

Swimmin' pools open today at Grant Park and Piedmont Park. Go by street car.

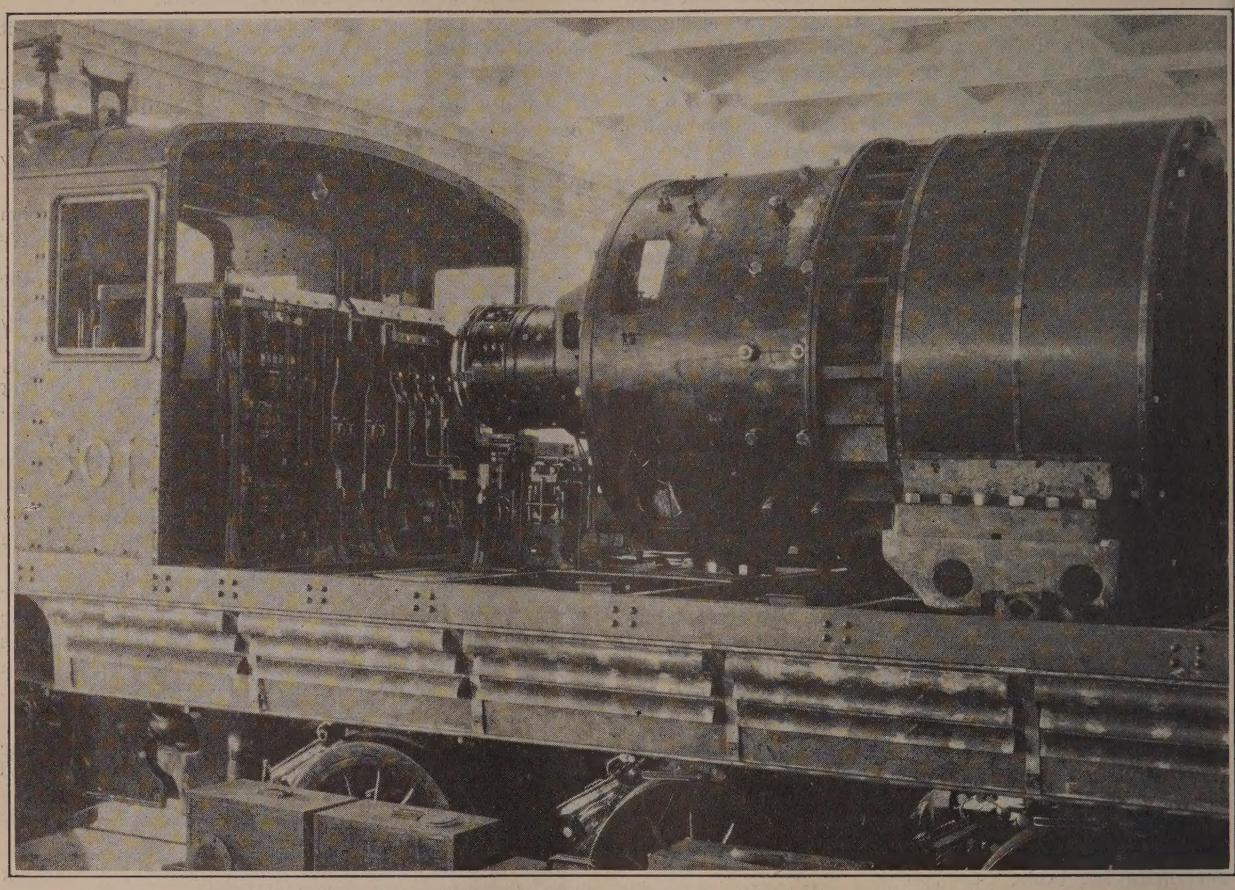
And now whenever there is a baseball game, a circus or an event of any kind it is announced by the Georgia Railway & Power Company with a closing admonition to "go by street car."

True, there may be nothing essentially new in all this, but it is the continued and sustained effort that counts with this class of advertising. The more it is seen, provided that it does not become tiresome, of course, the greater its influence and its effect.

At any rate, by means of just such advertising as this the Georgia Railway & Power Company took advantage of local situations, local events and local points of interest to increase the number of its passengers.

Ford Motor-Generator Locomotive on Test

Detroit, Toledo & Ironton Freight Engine Now Undergoing Tests at Rouge Yards on Henry Ford's Electrified System—Combination of 22,000-Volt A.C. Trolley and 600-Volt D.C. Motors Is Used



The Motor-Generator Set Is Mounted Near the Inside of Each Locomotive Half-Unit

PRELIMINARY tests on the first locomotive constructed for use on the electrified lines of Henry Ford's Detroit, Toledo & Ironton Railroad indicate that it will have an excellent performance. This locomotive, an article on which was published in ELECTRIC RAILWAY JOURNAL for Oct. 18, 1924, page 707, is designed to take current from an alternating-current trolley at either 11,000 or 22,000 volts single phase, 25 cycles. This current is stepped down by means of alternating-current transformers to 1,250 volts, which is fed into a synchronous motor-generator set and converted into direct current at variable voltage for driving the eight series-wound traction motors.

The mechanical design of the locomotive was by engineers of the Ford Motor Company, while the electrical equipment was built to the Ford specifications by the Westinghouse Electric & Manufacturing Company. The present article is published through the courtesy of the *D. T. & I. Railroad News*.

Features of the control are the extreme flexibility and wide range of speeds permissible, both while driving the locomotive and while regenerating. This is combined with a minimum of rheostatic loss. All the d.c. circuits are closed within the locomotive and are ungrounded, so that there is no possibility of electrolysis. The locomotive is designed to develop a maximum of 5,000 hp. Maximum tractive effort at starting is approximately 250,000 lb., based on a total weight of 372 tons, all of which is distributed over the 32 driving wheels. The normal rating is 4,200 hp. at 17 m.p.h. and 3,600 hp. at 25 m.p.h.

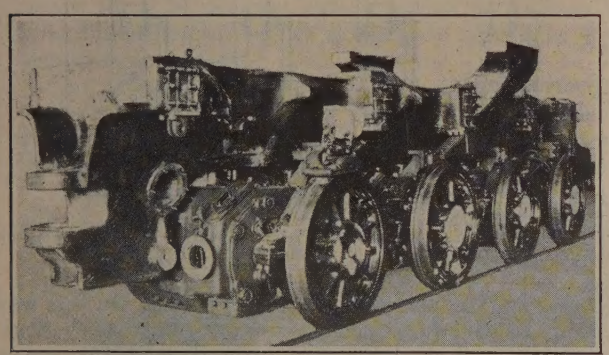
Both for driving and for regenerative braking, the speed control is extremely flexible. There are 45 steps between standstill and 17 m.p.h. Control is by means of regulating the main generator voltage. Between 17 and 25 m.p.h. it is effected by varying the separate excitation of the traction motors. This is shown in the diagram of connections.

The converter set is started by means of an auxiliary 60-cell storage battery, which brings it up to half speed. From this point it is brought up to full speed by means of alternating current, which accelerates and brings the set into synchronism automatically.

The locomotive, which is designed primarily for freight service, consists of two identical units which are coupled together semi-permanently by means of an

articulated connection, shown in one of the illustrations. This makes the wheel arrangement 0-8-8 + 8-8-0. Two or more of such locomotives may be coupled together and operated by means of multiple-unit control. Each of the halves of the locomotives is again divided into two sections with eight driving wheels. They are connected by universal ball-type hinges. These portions are not identical, however. The leading truck carries an automatic oil circuit breaker, a 2,000-kw. transformer, an air compressor, a motor-driven blower for the traction motors and a cooler for the transformer oil. A centrifugal oil circulating pump is also driven from the blower shaft.

On the inner truck is the motor-generator set, which consists of a 25-cycle, 1,240-volt, 750-r.p.m. synchronous motor driving a 600-volt d.c. generator. Mounted on the same shaft are a 75-kw., 125-volt main exciter and a 25-kw., 10-volt regenerative exciter. Switches and other auxiliary equipment are mounted in this section of the locomotive, while smaller groups of switches and



Inner Section of the Running Gear. The Cradle for Supporting the Motor-Generator, the Method of Motor Suspension, the Articulated Joint and the Brake Cylinder May Be Seen

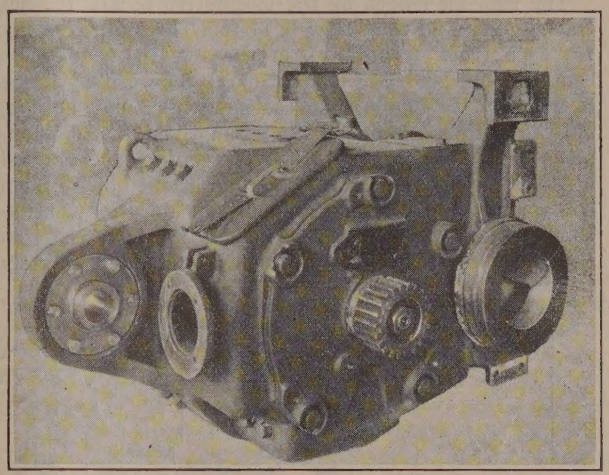
miscellaneous equipment are located in the bulkhead between the engineman's cab and the machinery compartment.

Quill Drive Is Used

Each power unit has eight d.c. traction motors of the axle-hung type, rated at 225 hp. each. A motor with its driving gear, axle and wheels forms a complete unit which is interchangeable in the assembly. The motors are geared through 3½-d.p. twin gears with a ratio of 22 to 98. The gears are shrunk onto the cast-steel wheel centers. The two wheels are pressed on a 9-in. axle which rests in two fixed bronze bushings, each of which is 14 in. long and is fitted into the motor housing. Thrust collars are provided on the bushings.

Large journals were used to minimize axle deflection

One of the Traction Motors, Showing the Method of Mounting on the Axle



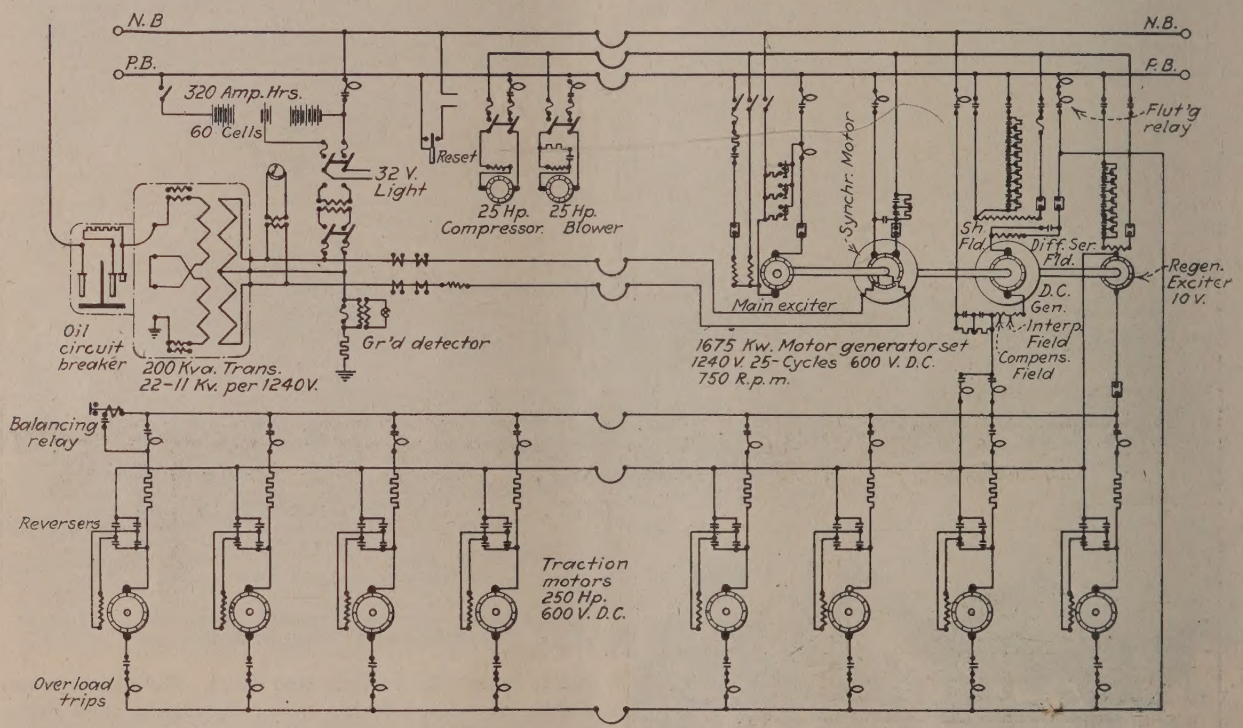
The Completed Electric Locomotive for the D., T. & I. as It Appeared on Test at the Rouge Yards

and to make the running gear quiet. Both pinions are flexibly connected to the motor through a quill drive. The hollow motor shaft carries the armature and is supported in two bearings of standard design. Keyed to it internally at half length is a flexible propeller shaft with a driving pinion at each end. These pinions again have shanks fitted loosely in the hollow armature shaft. The arrangement permits them to rotate relatively to the hollow shaft as well as to each other, insuring a good mesh with both gears and absorbing any vibrations in the drive.

Each motor unit is suspended at three points and is guided at a fourth. The tractive force of each motor is transferred to the locomotive frame through a universal ball-and-socket joint, while the weight of the upper locomotive structure rests on two equalizing beams located directly above the axle. Two brackets reaching out from the motor housing serve as supports for these equalizing beams. In order to keep the motor units lined up on the track and to prevent any lateral motion a point opposite the universal suspension joint with respect to the axle is guided vertically in a frame extension. Only six motors for each power unit are suspended in this manner. The leading and trailing

axles have spring-buffered guides allowing a maximum of 2 in. lateral motion each way in curves. The equalizing beams rest on rocker pins and are flexibly suspended on a series of leaf springs, the whole system forming a spring rigging with five fixed points for each truck.

The over-all length of the locomotive is 117 ft., but the longest rigid wheelbase is 11 ft. The main framing for each truck is built up of three main members, a center frame and two side frames. The center frame is a heavy box-shape steel casting which may be considered as the backbone of the locomotive. It has extensions to take care of the heavier equipment mounted directly on it, while the inside is partitioned off to form a main air reservoir and a supply air duct for ventilation of the traction motors. Cooling air is forced into this duct by the blower, which is mounted directly



Schematic Wiring Diagram, Showing Arrangements for Controlling the D.C. Traction Motors by Field Excitation of the Generator, Which Is Driven by a Synchronous Motor from the 22,000-Volt A.C. Trolley

above, and is distributed to the individual motors through flexible metal bellows. Air ducts are connected through the hinge between adjoining frames by means of flexible canvas.

To the left and right of this center frame casting and parallel to it are bolted two channel-shaped castings which form the outer side frames and serve to support the structural steel cab platform. These channel side frames, with their openings facing outside, serve as starting battery compartments and also hold some of the smaller electrical and mechanical equipment. These compartments are covered outside by hinged sheet steel hoods.

The motor-generator, which is the heaviest single piece of the equipment, rests on the center frame casting at three points. Ventilating air is drawn through the end shields and is exhausted into a funnel near the center of the set. Both inlet and outlet are provided with shutters which may be operated either automatically or manually to circulate the hot air into the cab or to the outside, depending on the temperature.

The second heaviest piece of equipment is the transformer. Being oil cooled, it is housed in a welded tank of ¼-in. boiler plate. The design is such that the cover of the transformer is a unit with the automatic oil circuit breaker. Series-parallel connectors to change over from 22,000 to 11,000 volts on the primary are located inside the tank and can be reached through a manhole in the cover. Potential and current transformers for the meters and relays are also placed inside the tank. The cable connector between breaker and transformer primary is also under cover, while the cable leading from the pantograph to the breaker enters through the roof. The protective resistance for the breaker is built into the breaker oil tank, which can be lowered for inspection purposes by means of lift screws, gears and a crank located on the cab roof. In this way there are no leads inside the cab carrying trolley voltage.

Cooling oil for the transformer is circulated by means of a small centrifugal pump driven by the motor blower. An oil-cooling radiator is placed on top of the traction motor blower. From this the cooling air is drawn and exhausted through the cab roof. This blower is of the double suction type, driven at a normal speed of 1,650 r.p.m. by means of a d.c. motor. When the speed control lever is in the off position an interlock will permit the blower to run at half speed.

The master controller contains contact drums connected to three operating levers mounted on telescoped horizontal shafts, the air-brake valve in a horizontal position on a bracket extension at the right, and the sander foot control. Minor controls for whistle, bell, light and reset switches, double cut-out cock, etc., are also provided.

The cab is constructed of ¼-in. plate, while the inside

partitions are ⅛ in. The two cab sections are joined by a flexible canvas diaphragm. The central portion of each half cab can be lifted off while the engineman's compartment and the section nearest the articulation remain in place. This feature facilitates the work of overhauling.

UNUSUAL BRAKING SYSTEM PROVIDED

The air brakes are of unusual design. Individual brakes are provided for all but the leading and trailing axles. A small air cylinder on top of the wheel is supported on an extension of the traction motor. The cylinder and piston travel in opposite directions when the brake is applied, forcing a single brakeshoe down upon the wheel tire through multiplying levers. A flat leaf spring releases the brakes. The forces exerted by this mechanism do not affect the cab springs but merely relieve the journals of a certain amount of weight.

Electrification of the first 16-mile section of the Detroit, Toledo & Ironton, that from the Rouge Yards to Flat Rock, is well under way. This is the first step in electrifying the entire system between Detroit and Ironton, Ohio.

Automobile Manufacture Fast Becoming Consolidated

LEADING automobile manufacturers have long been predicting that as the number of automobiles increase, the number of manufacturing establishments would rapidly decrease. According to the La Salle Extension University *Business Bulletin* there are now 70 automobile makers in the field, of which eighteen are doing 96 per cent of the business. According to this monthly bulletin this marks about the final phase of the shaking down of the motor industry.

Quantity production and strong competition have made 10 to 20 per cent cuts in prices in addition to many improvements added to the cars now being presented to the market.

The bulletin also states that the eighteen principal makers turned out the largest production of automobiles ever recorded during the first half of the present year, and the export trade is 30 per cent more than last year.

Pay-Leave Car Tried in New York

Test Being Made with Remodeled Double-End, One-Man Car Seating 50 Passengers—Long Platforms Give Free Movement for Entrance and Exit

IN ORDER to determine the feasibility of using cars operated by one man in the congested service of New York City the New York & Harlem Railroad has remodeled one of its semi-convertible cars for front-entrance, pay-as-you-leave operation. The car which has been changed is 48 ft. 6 in. long, 8 ft. 3 in. wide and weighs 24 tons. With the revised seating arrangement, 50 passengers can be seated. The car is double truck and is operated by four motors.

The type of car chosen for this remodeling is one of a series with long platforms, which originally had a single sliding door at the front right-hand side and double doors at the rear right side. The steps were of the stationary type. In the remodeling the front left-hand and rear right-hand doors have been closed up completely and new folding doors and steps have been installed on the right-hand front and left-hand rear sides. The door opening which has been closed up uses the bottoms of the folding doors. The tops, however, have been fitted with two openings, in which screens are installed for summer operation. They will be replaced by windows during the winter months. With this arrangement the car will be cool in summer and easier to keep heated in winter. As it is the intention to allow smoking on the rear platform, a ventilator has been installed on the roof of each platform to provide maximum ventilation.

Inside the car the bulkhead has been removed. Originally, this consisted of a center section with door openings on either side. A railing of 1-in. pipe has been installed to separate incoming and outgoing passengers. This extends from a point 2 ft. inside the car body and curves to the center of the door opening. A folding slat type seat has been installed on the platform, providing seats for six passengers. This seat will be raised on the operating end so as to permit passengers to leave without interference. This

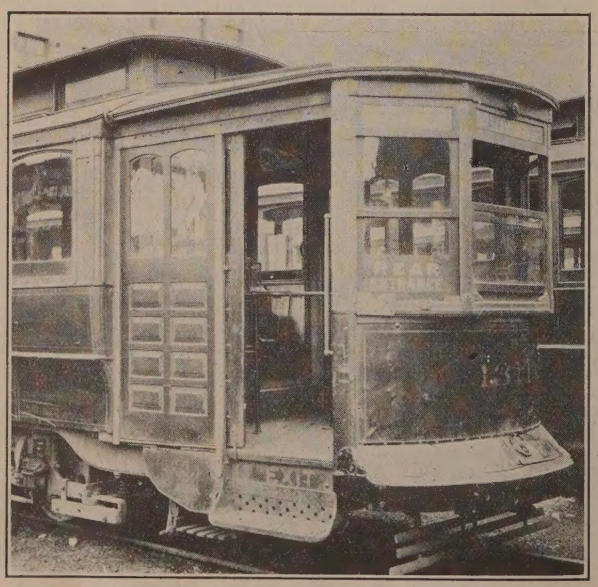
At Left, the Rear Doors Have Been Closed and Screens Installed for Ventilation. A Guard Is Also Provided for the Fenders. At Right, Front End of Reconstructed Car

seat has two strap hinges and a framework of 1½-in. x 1½-in. angles at either end which serve as supports.

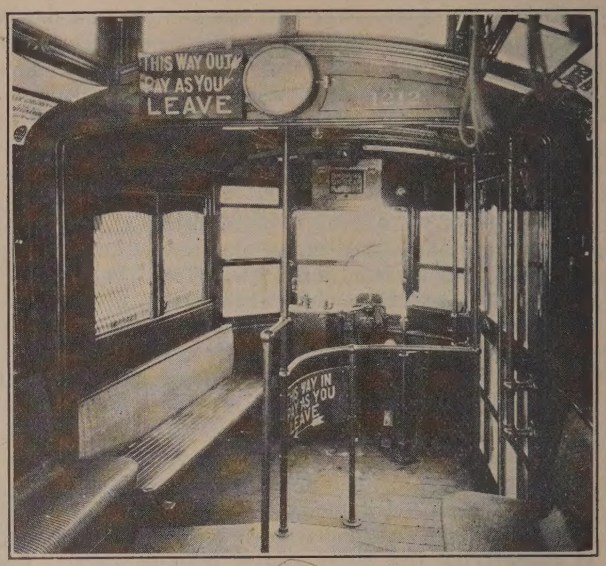
The doors and steps are arranged for manual operation. A pedal located just to the right of the controller is used to actuate the mechanism. This pedal fits into a socket so that it can be removed from the rear end and used only on the operating end. The connecting mechanism from the pedal to the doors and steps consists of a rod which runs to a bell-crank lever at the center of the platform. This bell-crank lever is connected through a shaft to a double bell-crank lever at the door end, the top of which is connected through a rod to an upright shaft at the right side of the door opening so as to actuate the door and step in opening and closing. The lower end of the double bell-crank lever is connected similarly by a rod to a vertical shaft which actuates the left door and also is connected to the door step mechanism so as to operate this at the same time.

The folding step consists of a wooden plank with the usual type of supports at each end. The front edge is equipped with a metal tread. In order to protect the fender on the side of the car where the step has been removed a wooden guard has been installed.

Particular attention has been given to directing passenger movements by means of conspicuous signs. As the car approaches, a sign on the right side of the front dasher is visible which reads "Front Entrance, Pay as You Leave." The left-hand door at the front is also labeled "In" and the right-hand door "Out." As soon as the doors are opened a sign clamped to the pipe railing inside the car is visible which reads "This Way In; Pay as You Leave." There is also an arrow indicating direction of movement. A passenger wishing to alight is directed by a sign in the clearstory at the bulkhead which reads, "This Way Out; Pay as You Leave." There is also an arrow pointing downward to indicate that the left-hand side of the platform is used for exit. Should a passenger be on the street at the rear of the car there is a sign painted across the closed entrance which reads "Front Entrance," with an arrow pointing to the front end of the car. There are also signs on each platform reading "Smoking on Rear Platform" and "Passengers Are not Allowed to Ride on the Front Platform."



Front End of the Type of Car Before Remodeling



Platform Arrangement of Reconstructed Car. Seat at Left Is Hinged and Used Only on Rear Platform

The operation of this car is being watched very carefully. Present indications are that the time of stops is reduced so as to give faster operation than with the present two-man cars. Should it be decided to convert additional equipment of this type, the officials of the company are considering the desirability of including line switches which operate underneath the car body to take the arcing from the control contacts and also additional safety devices.

"We Are Glad, Not Afraid, to Meet Our Customers"

AN EASTERN street railway official recently made the statement that an electric line had a harder job than a light or gas company in maintaining good public relations because the light and gas customers have a contact with the company only once a month, when they pay the bill, whereas street car customers have to come in contact with a representative of the company every time they ride.

It seems that the official took a rather round-about way to give himself a kick in the shins.

The fact that a representative of the street railway makes a personal contact with every customer in every transaction may be regarded as unfortunate in some places, but in Los Angeles we feel that it is a big advantage in making friends among the public.

A street railway that is afraid to have its trainmen represent it and fears that every contact is sowing seed of discord between the public and the company should start a house cleaning and make some radical changes in policy.

The street railway industry has a whale of a big advantage in having a personal contact in every transaction. It provides a wonderful opportunity for making friends and out here we are taking the fullest advantage of the opportunity. Praise be, we have an organization of men who have the spirit that makes friends—*"Two Bells," the official paper of the Los Angeles Railway.*

I. C. Electrification Uses Catenary System

Feeder Cables Form Main Messenger of Four-Wire, 1,500-Volt Double-Contact Catenary System Over Each Main Track—Portions of Right-of-Way Up to 300 Ft. Wide to Be Spanned by Six-Column Bridges to Carry Distribution System

SECOND ARTICLE

Typical Supporting Towers for Catenary System Over Six Tracks, Showing Signal Installation

FROM two to six parallel tracks on the main line will be included initially in the Illinois Central electrification. There will also be included one or two tracks on branches. As indicated in last week's issue, this will comprise a total of approximately 110 track miles along some 38 miles of route. The initial electrification of suburban service will be followed by electrification of freight and through-passenger service within the city limits, as shown schematically by the accompanying track diagram. Present plans must, therefore, anticipate as many as fifteen main line tracks in parallel in some sections and an ultimate electrified track mileage of some 415, including yards, sidings, etc.

Overhead catenary construction for 1,500-volt direct current was chosen in 1922 by the electrification commission appointed in 1920 to make a report upon the choice of system. The design and layout of the distribution system have been made by the permanent engineering staff. Steel structures and foundations are being erected by the railroad forces, while the contract for putting up the wire has been awarded to the Pierce Electric Company of Chicago.

The catenary system over each track will in itself provide the required current-carrying capacity in combination with paralleling facilities at substations and switching stations, without any additional feeders. The distribution system is designed for an average voltage drop in normal rush-hour service of approximately 12 per cent, with an all-day average drop estimated at 3 per cent. The average conductivity over each track, throughout the life of the contact wire, will be approximately 790,000 circ.mil copper equivalent.

Over each main track the system will comprise a composite main messenger of high tensile strength, two grooved bronze or copper contact wires and a hard-drawn copper auxiliary messenger. In the heavy traffic section north of 67th Street No. 000 bronze contact wires will be used to obtain the best wearing qualities. On the rest of the main line and on the South Chicago and Blue Island branches, No. 0000 copper contact wires will be used. The make-up of the catenary system will vary somewhat in other respects, as shown in the accompanying tabulation.

Normal height of the contact wire will be 22 ft. above the top of the rail at structures, with a leeway of 3 in. to insure against excessive sag under heavy current densities and high temperatures. This height

Editor's Note

General design information on the power supply facilities for the electrification of the Illinois Central Railroad terminal at Chicago was given in last week's issue of ELECTRIC RAILWAY JOURNAL. Many interesting features of the catenary distribution system are presented below.

SPECIFICATIONS OF CATENARY SYSTEMS, ILLINOIS CENTRAL ELECTRIFICATION

	From 67th St. North	From 67th St. South
Section of route		
Number of contact wires	2	2
Material and size	Bronze No. 000	Copper No. 0000
Conductivity, copper equivalent	80 Per cent	100 per cent
Diameter of main messenger	0.81 in.	0.81 in.
Number of strands	19	19
Size of hard-drawn copper auxiliary messenger	200,000 circ.mil.	No. 0
Hanger spacing	20 ft.	15 ft.
Ultimate strength of main messenger	31,500 lb.	31,500 lb.
Copper equivalent of entire system when new	838,900 circ.mil.	898,700 circ.mil.

will be maintained south of 43d Street, except at a few points where the track passes under overhead structures. On account of the close spacing of present and proposed bridges over the railroad right-of-way to provide access to Grant Park and the new Lake Front Park the contact wire north of 43d Street will have a normal height of 18 ft.-6 in. The minimum height of contact wire will

Representative Type of Steel Supporting Structure for Two-Track Electrification

be 16 ft.-6in. A gradient of 1 per cent or less with respect to the track will be used where the height varies.

Auxiliary messengers will be flexible. In each case a strand cable will be used to assure a contact line free from hard spots. The auxiliary messengers will be suspended from the main messengers by hangers spaced at 20-ft. and 15-ft. intervals for the respective catenary systems. Clips for the contact wires will be spaced at half these intervals, and each contact wire is to be carried from alternate clips. Each bronze contact wire will thus be supported at 20-ft. intervals and the copper contact at intervals of 15 ft. The two contact wires of the system will hang side by side, with points of support staggered, but with no appreciable sag. The experimental development of this system was shown in an article in ELECTRIC RAILWAY JOURNAL for July 28, 1923, page 125.

The resulting contact system differs from any other so far used by electric railroads in actual operation. The arrangement with a double-contact wire has been used previously, but the contact wire has been suspended directly from the main messenger. The insertion of the stranded auxiliary messenger increases the flexibility of the system and, it is believed, will practically eliminate "hardness" of contact. At the same time it provides positive connection between messenger and contact and eliminates wearing due to moving parts. The double contact wire is designed to insure good contact with the pantograph at all times, and thus prevent the burning and pitting of the wire that results from minute though injurious arcing at the contact between the current-collecting device and a single wire.

The use of this relatively elaborate system comprising four wires might be prohibitive for some installations, but on the Illinois Central electrification the total copper would be required in any event for feeder capacity. It thus became advantageous to provide the electrical conductivity in such a way as to give the best mechanical arrangement.

With the standard span of 300 ft., main messengers will have a sag of 4 ft. 9 in. under normal conditions. The resulting tension in the messenger will be 7,700 lb. for normal loading in still air at 60 deg. F., and under conditions of maximum loading (0 deg. F. with ice and wind) the tension will be 12,300 lb. Sags will, of course, vary with span lengths in such a way as to maintain the same tension throughout a messenger. Chord construction will be used for curves, of which there are relatively few.

Strain insulators for the support of this heavy double contact line catenary system were chosen in preference to those of the pin type, permitting the messenger wire to be hung from the structures. This places the entire catenary construction below the supporting structures, so that men may work on them with no likelihood of coming in contact with live wires. This feature is considered particularly important since the supporting structures for the contact line system are also used to carry signal wires.

Non-ferrous hangers and fittings will be used exclusively, and all connections between the parts of the catenary system will be fixed. For electrical purposes the component parts are thus so thoroughly cross-connected that they are in effect a single conductor. The minimizing of corrosion of fittings is expected to insure good electrical connections and to facilitate maintenance work.

CATENARY SYSTEM FOR YARD TRACKS

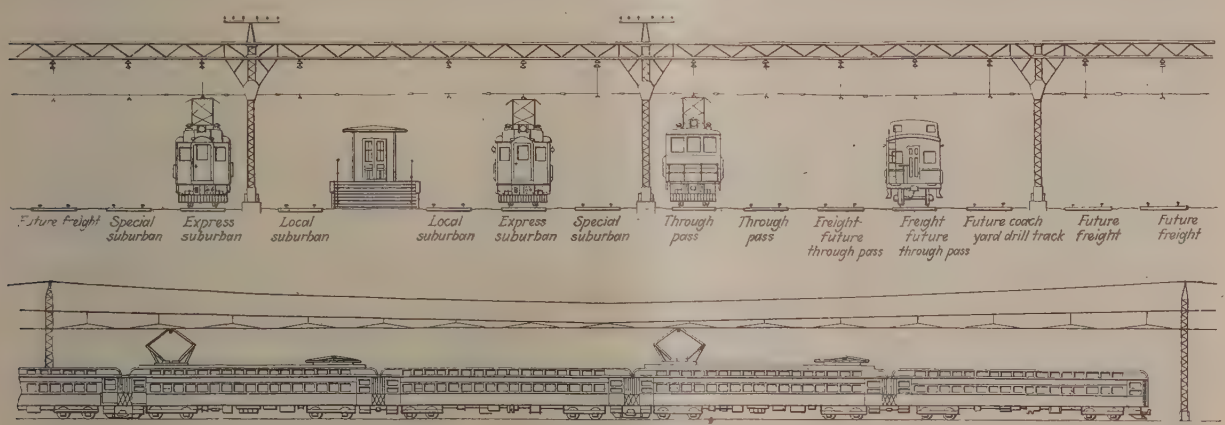
For crossovers, sidings and yard tracks the catenary system will be of simpler and less expensive construction than for main tracks. A single contact wire will be suspended directly from the main messenger. This will be of smaller section than for main line tracks. Such messengers will be mechanically independent of main line messengers, but the contact wires will merge into the main line so as to avoid any crossing of contact wires while still using the most advantageous method of wiring in each case. Crossover wiring will be connected electrically to the adjacent main line tracks, but will be sectionalized so as not to interfere with the complete sectionalization of the main tracks.

CATENARY WILL BE SECTIONALIZED

Substations and tie stations have been located at important interlocking points as described in the previous article, so as to come within the interlocking limits. Catenary systems will be sectionalized at these points and tied together through substation or tie buses. The double-contact wire lends itself readily to

air-gap sectionalization. At the desired point, the two contact wires alternately will be raised high enough to permit insertion of a strain insulator in each without the liability of such insulators fouling a pantograph. The contact wires will thus be continuous, and there need be no additional dead-ends. As a part of the insulation, the contact wires must be held apart at such points by suitable spreaders. Single contact wires will be used over crossovers and sidings. On account of the smaller number of pantograph passes and lower speed of operation, these will be insulated in general with wood section insulators cut directly into the contact line.

All track is of 90-lb. A.R.A. rail. A single No. 0000 bond on each joint will be used throughout. Additional return circuit conductivity will be obtained initially in the heavy traffic section of the line between



Above, Cross-Section Through Section of Yards. Below, Typical Span

Sixteenth Street and 69th Street by bonding some of the tracks not electrified in the initial stage.

Impedance bonds will be installed at the ends of each signal circuit. Tracks will be cross-bonded at alternate impedance bonds, the resulting spacing varying from 5,000 to 8,000 ft. for the several classes of service and different portions of the line. Direct-current signals, used at present under steam operation, will be changed for alternating-current operation during the process of electrification.

A. C. Distribution System on Catenary Structures

Three-phase, four-wire, 4,000/2,300-volt transmission lines for miscellaneous lighting and power loads will be carried on the catenary structures. Single-phase, 2,300-volt transmission lines will supply the signal system. Each of these will be fed from the substations of the Commonwealth Edison Company. Initially there will be duplicate signal circuits along the electrified part of the main line and a single circuit on the South Chicago branch.

Duplicate three-phase lines will be installed from Randolph Street to the 69th Street substation, and initially a single three-phase line from there to the end of the electrified zone. Future plans include an additional line between 69th Street and Harvey, the point of steam-electric changeover for future through passenger and freight electrification.

The transmission lines will be fed from both ends in every case, and will in general be sectionalized at mid-points between substations. Initially there will be

from four to twelve No. 1 hard-drawn copper, triple-braid weatherproof wires along each section of electrified route. All design has been such as to provide for the ultimate use of No. 00 wires. These will be carried on four-pin and six-pin angle-iron crossarms erected upon the tops of the catenary structure columns. Wires will be supported at a normal height of 33 ft. and 36 ft. and will have a normal sag of 6 ft. in a 300-ft. span. Resulting maximum tensions in wires will be 1,900 lb. and 2,500 lb. for each No. 1 and No. 00 wire, respectively.

In addition to the catenary and transmission wiring and signals, the catenary structures will support multiple conductor cables for signal control circuits. There will be up to 32 No. 14 wires in one or two cables, carried from an extra high strength steel messenger varying from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. in diameter. Along some sections of the line two messenger and cable assemblies will be used. These messengers will have a normal sag of 6 ft. for the 300-ft. span, and the resulting tension under heavy loading will be from 5,100 to 7,500 lb. for the several sizes. North of 70th Street these circuits will be carried in a duct line instead of on an aerial cable.

Loading of Catenary System

Wire loading was calculated for a maximum condition of a coating of ice $\frac{1}{2}$ in. thick on all wires and hangers, with a wind pressure of 8 lb. per square foot of projected area, including the ice. This pressure corresponds to an indicated wind velocity of about 72 miles per hour. As an alternative condition of maximum loading to cover extremely heavy winds, coincident with which there will not be heavy ice coating, a pressure of 20 lb. per square foot of projected area, corresponding to about 119 miles per hour indicated velocity, is assumed.

Loadings on flat surfaces of structures are taken as 12 and 30 lb. per square foot for the two conditions and ice on structures is not considered. The minimum temperature of still air was taken as —20 deg. F., while 0 deg. F. was assumed coincident with maximum ice loading.

Designed for Future Expansion

The layout and design of catenary supporting structures provides for their extension for future electrified tracks, while at the same time endeavoring to maintain an economical design for the initial installation, which

includes only suburban tracks. Consequently, structures were designed with a view of ultimately serving the entire right-of-way along a large portion of the electrified route. This right-of-way has a minimum width of 200 ft., with portions 250 and 300 ft. wide, exclusive of electrified yards. Bridges having as many as six columns will ultimately be used. Individual bents will ordinarily span up to four or five tracks, with lengths of 60 to 70 ft., but longer bents will be required at many locations, and in a few instances a single span will be used for the entire right-of-way width of 200 ft.

Complete rearrangement of tracks within the terminal district is being made preliminary to electrification, so as to provide for the ultimate maximum utilization of the right-of-way without the necessity for extensive changes after electrification. Along a considerable portion of the route this amounts to practically reconstructing the railroad. Since the normal track spacing of 13 ft. does not allow room for columns of catenary structures, a track spacing of 17 ft. is provided wherever possible, to permit the use of columns at appropriate intervals.

Several Types of Structures Used

On the main line, north of Kensington, built-up columns and trusses of latticed-angle construction will be used. This part of the line will have the greatest number of electrified tracks. Practically all structures ultimately will have more than two columns and will have long spans. In addition to the heavy catenary loading, certain of these structures will carry signals for various tracks.

South of Kensington and on the Blue Island and South Chicago branches, structures will be made up of Bethlehem H sections for columns and cross-beams. This section of the main line will have only two electrified tracks initially. Consequently single columns with brackets are to be used. Between Kensington and Harvey, a distance of about 6 miles, additional columns and cross-beams will be joined to those installed initially, as additional tracks are electrified. On the branch lines having only one or two tracks single columns and brackets or two-track portal structures will fulfill the requirements.

The structure of rolled sections will not be used for bridges with cross-members continuous for more than one bent. Occasional three-column structures required for combined signal and catenary use along the main line south of Kensington will be of the built-up type.

Models Used in Structure Design

In addition to the normal loads of wires and cables, and the ice and wind loads referred to, structures are designed to carry a load of 1,000 lb. parallel with the track in case there is a broken catenary messenger. Increase in this load is limited by the slipping of the cable if more severe conditions occur. In view of the heavy loads assumed, and the infrequency of their probable occurrence, a maximum calculated stress of 20,000 lb. per square inch is allowed in the structural steel.

Certain standard sections for trusses and columns have been adopted for built-up bridges. The sections adopted for the columns consist in practically all cases of four 4-in. x 4-in. angles laced, with a depth across the track of 15, 16, or 18 in. back to back. The sections for the trusses are four 3½-in. x 3½-in. angles, with the legs out and the lacing inside, with depths of 3, 4, 5 and 6 ft. over all. Using these sections, a careful preliminary design was made for each type of bridge to be built, differences in loadings being met by the use of angles of corresponding thickness.

Since stresses in bents of the types used for these structures are statically indeterminate, their exact calculation for structures of more than two columns was considered impracticable on account of the time and labor involved. A mechanical solution of statically indeterminate structures recently developed by Prof. G. E. Beggs of Princeton University, and presented in the *Proceedings* of the American Concrete Institute for February, 1922, seemed admirably suited to this problem, so a set of Beggs' apparatus, consisting of six deformeter gages and three microscopes, was used. In general, the mechanical solution of a bent with this apparatus consists in obtaining the relation of the deflection at various points on a cardboard model of the bent, to a known deflection made at the base of each column in turn. By Maxwell's theorem of reciprocal deflections this relation is also that of reaction to load, so if the deflection ratios are plotted and a smooth curve drawn for each column the result is a set of influence lines for the reactions at the bases of the columns. The results obtained with the Beggs apparatus were repeatedly checked by statics and found to be correct in that respect.

Foundations for Catenary Structures

While vertical loads on foundations will be comparatively small, high transverse values result from the assumed wind loading and curve pull. For single columns with brackets for two tracks the maximum load will be across track, and for bridge structures it will, in general, be along track.

Shallow rectangular side-bearing or gravity-type foundations are being used. Loads are such that for two-track bracket construction the gravity foundations have a length across track of 12 ft. and contain about 7½ cu.yd. An equivalent side-bearing foundation contains about the same yardage and has a bearing area of about 65 sq.ft., maximum working earth pressures being taken at 5,000 lb. per square foot. The gravity type was considered generally preferable where track spacing permits its installation without shoring the tracks. For bridge structures, the gravity type foundation is used, with the 12-ft. dimension along track.

North of 70th Street an underground conduit line is being installed to carry telegraph, telephone and signal wires and other miscellaneous circuits such as supervisory control for substation and tie-station operation. This will ultimately be extended to Kensington (115th Street). This line is of vitrified clay conduit, encased in concrete.

Another Tangerine Flier Added

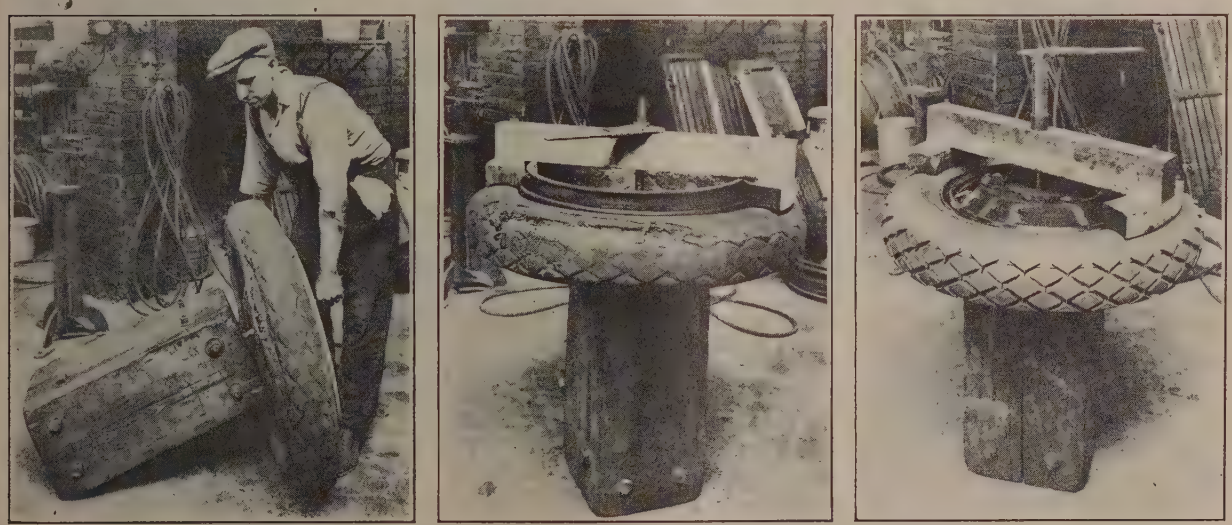
THE Illinois Traction System has placed in service an additional Tangerine Flier on the St. Louis-Springfield-Peoria division, making four of these fast trains each way each day. Under the rearrangement of schedules the Capitol Limited de luxe parlor car trains leave St. Louis and Peoria at 4 p.m. instead of 10 a.m. The Owl, sleeping car train between Peoria and St. Louis, will leave each terminal at 11.45 p.m.

Increasing Bus Tire Mileage

On the Boston Elevated Railway Careful Inspection, Accurate Records and an Analysis of Causes of Failure Are Used as a Means of Removal of Causes for Early Failure

WHILE more than 37,000 miles in service has been recorded for a bus tire, and not infrequently more than 25,000 miles has been reached, a fair average for the bus tires in use on coaches of the Boston Elevated Railway is about 18,000.

This company has 117 buses in operation over routes that in many cases cover 100 miles a day; in addition, many of these routes are through streets in Boston which are paved with stone blocks, surfaces that are neither conducive to smooth riding nor to great longevity in tires. As these tires are purchased on a mileage basis, and because each bus is equipped with six



A Simple Device Used by the Boston Elevated Railway for Mounting Tires on Bus Wheel Rims

At left, a badly worn tire is being placed on the device. The pedestal is tipped over to put the center stud through the disk and saves lifting the wheel. Note the split tread due to rail and pavement cutting. In the center view the tire is being pressed off with the crosspiece and nut. At the right, a new tire is being pressed into place.

running tires and a spare, the item of tire mileage—that is, of tire service—is a matter of great importance.

Building up tire mileage, no less than maintaining engine or battery mileage, is a matter of careful and constant inspection and proficiency in driving, in the opinion of Daniel Mackay, supervisor in charge of the division of bus maintenance and repair. Accurate service records of every tire are an economic safeguard; it is from such records in detail that methods can be devised or action taken for extending tire service to the maximum.

Tire service is dependent upon period of normal wear, punctures, and two causes of failure for which there are practical remedies. These last are tread splitting and side wall wear. Their prevention in good part depends upon proper air inflation and careful driving.

Air inflation deserves first consideration. Experience on the bus lines of the Boston Elevated shows that a pressure of 100 lb. per square inch should be maintained at all times. This pressure is for all six tires of the bus, which are in most cases 36 x 6-in. pneumatic cord types. On a few buses 32 x 6-in. pneumatic cords are used.

Tires are inspected every day. It is the duty of the inspector to check pressures, prevent leakage in nipples, or order the removal of a tire if its condition warrants such action. This daily inspection is recorded, the manufacturer's tire number being listed on a daily memorandum. In this way assurance of actual inspection is received.

If the removal of a tire is necessary, this action is recorded on a tire record card on file at the garage; in addition, a notification of tire change is sent to the department of rolling stock and shops, where later a letter containing the tire's history is prepared and forwarded to the departmental superintendent, the auditor, tire company, and purchasing agent. These forms are reproduced with this article.

Tire removal being a matter of common occurrence, the means by which it is accomplished, in view of the cost, is of interest. This company has discarded the stretcher type of tire remover in favor of a device that has been developed at the Albany Street shops by John Mackenzie, who has applied for a patent. It consists of one or two crossarms, centered on a shaft which in turn is mounted upright on a pedestal. The crossarms are fitted with grips patterned to the tire curvature. By applying pressure through wrench and nut a tire easily can be mounted on a rim, or readily detached. Moreover, with this device the time required for mounting or demounting a tire is about six minutes, a 50 per cent saving as compared with the common types of apparatus.

When a tire has been taken off the rim it is tagged and later delivered to the manufacturer after its history has been recorded in the files. As each tire is definitely assigned to one particular position on a certain bus, on its return after repair by the manufacturer, it is put

BOSTON ELEVATED RAILWAY DEPT. ROLLING STOCK & SHOPS

NOTIFICATION OF TIRE CHANGES

Name of Garage Forest Hill Garage Date August 1, 1925.

I wish to report that on date of August 1, 1925.
I made the following tire changes on Boston Elevated Railway.

Motor Bus Number 38421 B (226)

Name of Tire – Rubber Company Size of Tire 36 x 6 in. cord pneumatic.

TIRES PUT ON—Right Front Number
" " " —Left Front Number
" " " —Right Rear-Inside Number
" " " —Right Rear-Outside Number
" " " —Left Rear-Inside Number
" " " —Left Rear-Outside Number 460,700 P.C.

TIRES REMOVED		CAUSE OF REMOVAL	MILEAGE
Right Front	No.		
Left Front	No.		
Right Rear-Inside	No.		
Right Rear-Outside	No.		
Left Rear-Inside	No.		
Left Rear-Outside	No. 321,425 P.C.	Puncture	16,280

This report must be made out promptly upon any changes of tires on contract basis -- PREFERABLY IN INK—and forwarded immediately to the Albany Street Garage.

SIGNED: John Doe.
GARAGE FOREMAN

This Form Is Sent to the Department of Rolling Stock and Shops for Each Change of Tires. As the Tires Are Always Kept on the Same Wheels the Position Recorded Is Important

To Supt., R.S. & S. Dept.
Auditor.
– Rubber Company.
Purchasing Agent.
Copy for files.

Boston Elevated Railway

Date August 1, 1925.

LETTER NUMBER

Dear Sir—

I wish to report that on date of August 1, 1925.
the following tire changes was made on Boston Elevated Railway,

Motor Bus Number 38421 B. (226) Contract Basis.

Name and Size of Tires – Rubber Company, 36 x 6 in. Cord pneumatic.

Name of Garage Forest Hills Garage, Boston Elevated Company.

TIRES PUT ON—Right Front Number
" " " —Left Front Number
" " " —Right Rear-Inside Number
" " " —Right Rear-Outside Number
" " " —Left Rear-Inside Number
" " " —Left Rear-Outside Number 460,700 P.C.

TIRES REMOVED		CAUSE OF REMOVAL
Right Front	No.	
Left Front	No.	
Right Rear-Inside	No.	
Right Rear-Outside	No.	
Left Rear-Inside	No.	
Left Rear-Outside	No. 321,425 P.C.	Puncture

Very truly yours,
John Doe
Garage Foreman.

Copies of This Letter Giving the Tire's History Are Sent to the Superintendent of Rolling Stock and Shops, the Auditor, the Tire Company and the Purchasing Agent

back into service in its original place. In the meantime a spare assigned to the bus has been in service, but it gives place to the original tire on the return of the latter.

Thus a tire has one duty to perform; it renders service in a particular position and on a particular bus; only a spare is ever assigned elsewhere. If it is assigned, for example, to the left rear inside wheel, it remains in this position while in service. Its mileage is reckoned from tabulated mileage obtained for the route distance and number of trips recorded.

As tire failures are carefully recorded, a study of records gives a useful means of correcting mileage deficiencies. Normal wear and good mileage are to be obtained only through proper inflation, correct wheel alignment, and careful driving. Punctures, obviously, are frequently accidents, but on the other hand can be reduced, in part, through proper inflation and careful driving.

Tread splitting can be traced directly to improper inflation, driving on uneven edges of street car line borders or turning on wide arcs. As tread splitting generally results in discard for a tire, attention to

Form 3791 12-24-1m 63

BOSTON ELEVATED RAILWAY

Motor Vehicle No. M-36421-B TIRE RECORD CARD Dept. R. S. and Shops

Date Tires Put In Service	Name of Tires	Size	Original Tire Equipment		
April 1, '25	Rubber Co	36 x 6	Right Front	No.	422, 725 P.C.
"	"	"	Left Front	No.	422, 800 P.C.
"	"	"	Right Rear-Inside	No.	422, 824 P.C.
"	"	"	Right Rear-Outside	No.	422, 836 P.C.
"	"	"	Left Rear-Inside	No.	422, 831 P.C.
"	"	"	Left Rear-Outside	No.	321, 425 P.C.
Aug 1, '25	"	"	Spare Tires	No.	460, 700 P.C.

RECORD OF TIRE CHANGES

Date	Position	Number of Tire Put On	Number of Tire Removed	Cause of Removal	Mileage
Aug 1, '25	left-rear out	460,700 P.C.	321,425 P.C.	Puncture	16,280

Form B89

TIRE CHANGE TAG

Be careful not to read brand numbers upside down. The bottom of numbers are next to rim.

Driver must give complete information called for below and attach this tag to tire turned in.

Removed Tire No. 321,425 P.C.
Applied Tire No. 460,700 R

FRONT REAR

[ ] [L-C]

Bus No. M-36421-B
Date Aug 1, 1925
Remarks Puncture

B-89

At Left, Record Form for Tires on Each Bus. At Right, Tire Tag Attached to Each Tire Turned In

methods for alleviating this type of failure is of interest.

Experience has shown that wide axles for front wheels are desirable, as they provide a shorter turning radius, reducing it from 45 ft. on an average to about 32 ft. Not only does the wide axle prove more efficient in preventing travel on long arcs, with a consequent greater wear on the edge of a tread and a weakening of the wearing surface of a tire, but it offers another equally great advantage, which is greater facility in approaching a curb. For the wide front axle better aligns the front wheels with the rear and in so doing enables a driver to come to a stop at the curb without danger of side rubbing of tires.

Side-Wall Rubbing. A Type of Failure That Can Be Prevented by Careful Driving

Both tread splitting and side-wall rubbing can thus be traced quite frequently to careless driving. These two types of failures can be reduced by corrective operation.

On the basis of ten stops to the mile, and figuring an average day's run at 100 miles, it is evident that 1,000 stops per day may be made by many buses. Just what the effect of these stops is on tire life remains to be found out. However, tire inflation, careful driving, and rigid inspection cannot fail to increase the service of bus tires, which means operation at a lower cost.

Only One Accident in Eight Due to Negligence

Avoidable Accidents Have Been Reduced 75 per Cent by United Railways of St. Louis—Collisions and Derailments Show Greatest Reduction

ON THE United Railways of St. Louis a reduction of 5,642 accidents has been made in the twelve-month period ended March 31, 1925. This record is an improvement of 21.8 per cent over the previous year. Accidents of the type which can be avoided by care on the part of the trainmen have been reduced approximately 75 per cent, until now only one in eight accidents can be charged to negligence of the employees. That the blame for a majority of the accidents rests upon the drivers of other vehicles and the public is shown by an increase of 14.4 per cent in the number of general highway accidents in St. Louis during the time when the railway made substantial reduction.

Figures for the twelve months ended March 31, 1925, are given in the accompanying table. A gratifying feature is that a reduction is shown for every class of accident except one, "falls in cars." Moreover, the most serious accidents, such as car collisions and derailments, show a greater per cent of decrease than does the general average.

Previous to June, 1923, the United Railways had no safety department, although the management had instituted in 1920 a system of prizes for good accident

ACCIDENT STATISTICS OF UNITED RAILWAYS OF ST. LOUIS

	12 Months Ended March 31, 1925	Previous 12 Months	Decrease	Per Cent Decrease
Collisions with vehicles	525	763	238	31.2
Collisions with persons	564	695	131	18.8
Collisions with animals	53	82	29	35.4
Collisions with motor vehicles	11,311	12,968	1,657	12.8
Car collisions	325	541	216	39.9
Car derailments	147	327	180	55.0
Boarding and alighting	2,140	2,541	401	15.8
Falls in car	885	880	....	.5*
Disturbances	609	936	427	45.6
Car equipment	45	190	145	76.3
Miscellaneous	2,041	3,877	1,836	47.3
Employees injured	130	210	80	38.1
Power plant	192	248	56	22.6
Maintenance of way	545	662	117	17.7
Shops and sheds	321	380	59	15.5
Electrolysis	38	41	3	7.3
Struck by doors	398	570	172	30.2

*Represents increase.

records. The sum of $100 was given each month to the carhouse showing the largest number of passengers carried per accident. Three types were considered, boarding and alighting accidents, other transportation accidents, and no report claims. The position of safety director was created in June, 1923. During the succeeding six months this official made a careful analysis of types of accidents. In February, 1924, a simple plan of safety organization was adopted. This provides for a safety director responsible to the manager. He is at the head of a separate department, consisting of safety committees of motormen and conductors from each of the thirteen carhouses. Later a shopman was added to each committee.

A committee meeting is held in each carhouse once a month, with the safety director as chairman. They are held at varying hours to meet the convenience of the committee men, since their attendance is voluntary and on their own time. Discussions are absolutely free and cover the entire range of street car operation. The safety director presents information on revenue expenses, work being done at other carhouses, etc. Usually, the foreman or superintendent sits in. Frequently several of the other employees drop in and join the discussion.

In addition to the committee work, an open meeting is held once a month at each carhouse. Getting as large an attendance as possible of employees is left to the committees, foremen and division superintendents. Notices are placed on the blackboards and invitations are mimeographed and handed to each man. In some cases post cards have been sent to their homes. Large wooden clocks have been installed at each carhouse, with two movable hands, one red and one black. The black hand indicates the number of accidents for the same month the preceding year. Accidents of the current year are shown by the red hand. The clocks are so placed as to be seen by every trainman entering the carhouse and every motorman taking out a car. The slogan "Keep the red hand back" has proved to be very effective.

Association News & Discussions

Iowa Operators Meet in Mason City

Track, Line and Equipment Subjects Are Discussed—Co-operation between Departments Held to Be All-Important from the Standpoint of Reducing Costs

MEETING at Mason City for their regular summer session, Iowa electric railway men entered freely into the spirit of trying to improve their own practices by comparison with those of others. Representatives of the various operating departments discussed questions of specific import in their daily work. At the same time the range of subjects was broad enough to give each man an opportunity of listening to the other department's viewpoint, and of determining how he could improve the general maintenance and operating situation by carrying in mind the effect of his own practices on the work of some of the other departments.

This was particularly true for the equipment and overhead departments. G. F. Roach, Ohio Brass Company, began with a discussion of overhead construction and maintenance, in which he emphasized the importance of co-operation between these departments. The importance of standardized equipment and methods on each property from the standpoint of reducing maintenance costs was also brought out strongly.

Mr. Roach advocated that each property determine the type of overhead equipment best suited to its requirements with a view toward minimum ultimate cost rather than first cost, and then adhere to the use of such uniform products until altered conditions necessitate a change. He pointed out the advantages, from the standpoint of reduced maintenance cost and stores expense, of doing test work at specified locations where comparative results between various products of one or several manufacturers could be obtained under comparable service conditions, while at the same time limiting purchases for general maintenance to those types and varieties of materials that had been thoroughly proved in tests and in the light of experience.

"All manufacturers," he said, "are keenly interested in their customers' prosperity." Since the manufacturer is dependent for his profits on the railway companies' ability to buy supplies, their own success is so closely allied to that of their customers, that they cannot afford to be otherwise than solicitous of their welfare. From the buyers' standpoint, however, he declared that many purchasing agents are not sufficiently familiar with the relative merits of various types of overhead apparatus to enable them properly to select the best materials and appliances for the service requirements of their properties. For this reason close co-operation between the purchasing department and the operating departments requisitioning the materials is of utmost importance, he maintained.

For average service conditions the 15-in. trolley ear was held to be the most generally successful. Mr. Roach said that ears as short as 9 in. in length are far more expensive in the long run than are longer ears that have a greater first cost. He pointed out also, that breakage due to crystallization of the wire at the ear, under the effects of vibration caused by many factors encountered in service, is usually considerably greater where short ears are used. He characterized it as particularly bad practice, from the standpoint of holding maintenance costs low, to allow ears to remain in service until the trolley wire drops out. This, he said, usually results in such damage to the trolley wire that a new piece must be spliced in to avoid failure of the line at the weakened point.

Although labor and material costs for the repair of trolley failures amounts to a considerable item when such failures occur frequently, he held that the lost time of cars and platform men—actual cost of delays to service as well as their unfavorable effect on the public—are in spite of their intangible nature of even more importance than the actual labor and materials involved.

From observation of the conditions on many electric railway properties, he said that there is too frequently a lack of proper co-operation between the equipment and overhead departments, with the result that comparatively small savings in the former are sometimes made at the expense of much larger losses in overhead maintenance. This was held to be particularly true of the current collecting devices on cars. A small saving in trolley wheels sometimes proves to be expensive to line maintenance. Such items as improper size or shape of trolley wheels, stiff and sluggish bases, bent or twisted trolley poles and similar defects in the collecting equipment, all result in greater wear on the trolley wire and its supporting parts.

F. McDonald, purchasing agent Waterloo, Cedar Falls & Northern Railway Company, discussed Mr. Roach's reference to the functions of the purchasing agent in the selection of materials to be used by the line department. He said that any man in charge of an operating department should have something to say regarding the materials and replacement parts to be used by his department. Thus it is only by the close co-operation between the purchasing agent and various department heads that the best results can be obtained.

C. M. Feist, master mechanic Sioux City Service Company, agreed with Mr. Roach that the condition of the collecting mechanism plays a large part in the total life and cost of the overhead system. He said that for best results the trolley base must swing free even when the rail and wire are perfectly aligned. There must be sufficient tension in the bases to insure proper contact between the wheel and the wire, or otherwise excessive arcing and current loss will result. He pointed out the fact that tests have shown that current losses through the collecting mechanism sometimes amount to more in value than the total cost of maintenance of the collecting apparatus.

A paper outlining some of the operating improvements and economies effected by the Tri-City Railway Company, Davenport, Iowa, through rerouting and other service changes was read by E. J. Anderson, general superintendent. An abstract of this paper is printed on another page. Following its presentation, a lively discussion ensued regarding various phases of the problem of improving service and keeping cars on time. M. A. Welsh, superintendent and traffic manager Waterloo, Cedar Falls & Northern Railway Company, commented on the advantages of allowing trainmen sufficient lattitude in the rules for handling passengers to permit the exercise of initiative when faced with a condition affecting the revenue of their line or

COMING MEETINGS OF *Electric Railway and Allied Associations*

Sept. 10 — Central Electric Railway Master Mechanics Association, Grand Hotel, Anderson, Ind.

Sept. 28-Oct. 2 — National Safety Council, Cleveland, Ohio.

Oct. 5-9—American Electric Railway Association, annual convention and exhibits, Young's Million Dollar Pier, Atlantic City, N. J.

Oct. 21-23—American Welding Society, Boston, Mass.

Jan. 28-29—Central Electric Railway Association, French Lick, Ind.

business. He still believes that the water powers of the nation are being "grabbed" by "private interests" and used to exploit the people. He still fails to realize that every kilowatt of electric energy generated from these water powers is sold at a price fixed by his own regulatory body and that tremendous sums are paid in taxes each year as compensation to him for their use. These are some of the problems with which the average public utility is confronted and which can be solved only by taking the public fully into our confidence.

In closing, just a word of warning. Any utility whose house is not in order and which cannot give this full measure of information to the people had better pursue the old policy of saying nothing. Every public utterance by a representative of a utility and every printed line used by it must be the exact and literal truth. Let our opponents spread the falsehood, and while it is going to be a hard, discouraging battle, I am fully convinced that in the long run "truth must prevail."

Six and Eight Wheel Vehicles Coming*

By A. F. Masury
Vice-President and Chief Engineer
International Motor Company

THERE are almost unlimited opportunities in the field of transportation for the use of six-wheel and eight-wheel motor vehicles. Present types of motor vehicles are serving present needs in a more or less successful way, but when strict economies become the standard for measuring road transportation, a demand will be made for vehicles that will accommodate the maximum freight or passenger loads in the minimum of street space. These vehicles must be designed so as to permit speeds commensurate with common sense and safety. They will offer the utmost in passenger comfort. The growing need for more economical transportation is paving the way for larger vehicles. Their ultimate success lies in the future development of the highways and the development of larger vehicles that have a better distribution of the load on the road.

If greater loads are to be carried, more wheels must be called into play in order that the axle loads can be kept within reasonable limits and so that the weight can be distributed over as great a road area as possible. Possibly in the future we may see both freight and passenger carrying vehicles operating on caterpillar tracks developed to a state that will allow speed and at the same time be noiseless in operation. Six-wheel and eight-wheel motor vehicles can be used to good advantage at present. The principal reason for the increasing popularity of the six-wheel and eight-wheel vehicles is the demand from a critical riding public for riding comfort, but this type of vehicle has an equal and perhaps a greater field of usefulness in the trucking business.

*Abstract of a paper presented before the Metropolitan Section of the Society of Automotive Engineers in New York.

American Association News

American Nominations Submitted

NOMINATIONS for officers and new members of the executive committee of the American Electric Railway Association have been submitted to the executive committee in accordance with the provisions of the constitution. The names submitted will be voted on for election at the annual convention of the association, in Atlantic City on Oct. 6:

For president: F. R. Coates, president the Community Traction Company, Toledo, Ohio.

For first vice-president: W. H. Sawyer, president East St. Louis & Suburban Railway, East St. Louis, Ill.

For second vice-president: R. P. Stevens, president Republic Railway & Light Company, New York, N. Y.

For third vice-president: J. P. Barnes, president Louisville Railway, Louisville, Ky.

For fourth vice-president: Paul Shoup, president Pacific Electric Railway, San Francisco, Cal.

For treasurer: Barron Collier, president Barron G. Collier, Inc., New York, N. Y.

For members of the executive committee at large for the three-year term expiring 1928:

Railway members: G. A. Richardson, vice-president and general manager Chicago Surface Lines, Chicago, Ill.; L. H. Palmer, vice-president and general manager United Railways & Electric Company of Baltimore.

Manufacturer members: M. B. Lambert, manager railway department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.; S. J. Cotsworth, sales agent Lorain Steel Company, Philadelphia, Pa.

The report was signed by T. W. Casey, G. J. Kuhrts, C. D. Emmons, James H. McGraw, Thomas Fitzgerald, Richard Meriwether and Thomas N. McCarter, chairman.

Golf Plans for the Convention

SUNDAY, Oct. 4, the golf tournament will be held at the Northfield Golf Club, between 9 a.m. and 5 p.m. and is open to all delegates to the Atlantic City Convention. Prizes will be displayed at the club Sunday and will be awarded Wednesday night on the pier to winners on an eighteen-hole medal score. There will be a first and a second prize for class A with handicaps from 1 to 19, and a first and a second prize for class B with handicaps of 20 up to the outer limit of 35. Also a first and second prize will be given for a "kickers" handicap. A special prize will also be given for the "gololepher" who lands his ball nearest the pin on the drive on the fourth hole. A tape measure and pad will be provided at this location on which good records can be recorded. Here is a chance for the "hole in one" crew to do some good work.

W. J. Stanton, chairman of the golf committee, states that the Northfield Country Club can be reached by cars of the Shore Fast Line leaving from the Boardwalk and Virginia Avenue.

Each member will pay his own green and caddie fees of $3 and $1 respectively. All scores must be turned in not later than 5 p.m. Sunday, Oct. 4.

As previously announced the Sea View Country Club has extended its privileges to members of the association from Monday morning, Oct. 5, to Oct. 9. Green fees will be announced later. All that is necessary is to display the convention badge and pay the fees.

Convention Exhibit Arrangements Are Progressing

OVER 95 per cent of the space for the exhibit at the Atlantic City convention has now been paid for, according to Director of Exhibits F. C. J. Dell. Arrangements for setting up and lighting the big tent to be known as "Shelburne Court" are completed. The tent will be oval in shape and will hold a considerable number of automotive exhibits. Mr. Dell states that practically nothing more remains to be done before the exhibits begin to be set up on the pier.

Special Reports Available

SPECIAL reports have been prepared by the Bureau of Information and Service of the American Electric Railway Association and are available to member companies in good standing upon request, as follows:

Bulletin No. 41. Street Railway Fares in American Cities. A new edition of the Association's fare bulletin giving the fare systems in American cities, the cash rate, the ticket rate, transfer privileges, special children's, students' and workmen's rates, the date the fares became effective and the previous rates.

Bulletin No. 42. Interurban Fares. A new fare compilation showing for each interurban system the fare basis, whether mileage, zone or flat rate, the cash rate, the ticket rate, special commutation rates, and the date the rates became effective. The cities connected by the various interurban lines are also shown, together with the latest figures on the population served.

Bulletin No. 43. Fares on Electric Railway Bus Lines. This is the first special bulletin on bus fares ever issued. It gives for the bus lines substantially the same fare information as for the railway lines—the cash rate, the ticket rate, transfer privileges between railway and bus lines and any special rates allowed together with the effective dates of all fares.

Bulletin No. 44. Weekly Pass Results. Some recent figures on the results of the use of the weekly pass, the Sunday pass and the monthly identification card based on replies to an association questionnaire, together with a complete record of all of the developments in the pass idea since the first experimental trial six years ago. The material presented includes comparative statistical data on operations before and after the introduction of the pass and statements of executives of the companies as to the value of the pass, the results to be expected from it and its limitations.

In addition to the above supplements to the Wage Bulletin and Cost of Living Studies (Bulletin No. 42) have been prepared, bringing them up to date.

instead of on the cars. Tear transfers are used to save waste of time punching the old style ones.

With the numerous changes in schedules placed in effect, the need of a public time-table was imperative. Many experiments were made to prepare time-tables in abbreviated form. Due to the flexible service, however, the only one that met with public approval was a time card showing the leaving time of every car from the ends of each line and from the business district. Large time cards were posted on poles along the line. Separate cards were made for every five-minute time point and posted 2½ minutes each way from this point. Some of these cards are in good shape after being up in the weather a year. Pocket time cards were distributed by the thousands through the cars, cigar stores and hotels. All this has done a great deal to induce people to take their street car by schedule rather than by guesswork and has also done much to convince the public that our schedules are extremely accurate and dependable.

One of the old street car rules was discontinued when signs were placed in all cars inviting patrons, if they had missed their car going to town to take an outbound car to the end of the line and return for one fare. A great many passengers that would have been picked up by some automobile, were in this way induced to ride the street car.

As most cars were routed past different corners than formerly in the business district, the problem of directing people to the proper corner to take their car was overcome by securing permission from the city to use the reverse side of the safety zone standards. Each standard has the name of all lines passing that corner painted on it. This has helped materially in directing passengers when these signs are not in place in the safety zone they are set on the curb and serve there just as well to direct people to the proper car. The company agreed to maintain these signs in compensation for having received this permission from the city.

Some little time after the rerouting had been in effect signs were placed in all cars asking regular patrons who were just missing transfer connections to notify the company. Many calls were received. Meets were arranged on operating schedules and these patrons enjoy their ride much more, now that they are assured of transfer connections when leaving home.

Under the rerouting plan 11.6 miles of track was abandoned and 1.1 miles of new track built. The total cost of construction work necessary to carry out the rerouting, which included numerous passing tracks, together with new overhead line and fourteen sets of automatic electric signals was $104,500, while the cost of replacing pavement on abandoned stretches of track was $46,500. Thus the total cost of this work was $151,000. The economy effected by carrying out these changes, together with the success of negotiations with the city regarding the replacement of paving, can best be appreciated when it is known that it would have cost the company $195,000 alone to have removed its tracks and repaved the space occupied, had it been required to do so.

The success attained in reducing the investment in property can well be measured by the fact that it would have cost the company $500,000 to have rebuilt the abandoned track, which would have been necessary within the next few years. Special trackwork alone eliminated by this work would have cost $102,000 to replace. A great deal of it was reclaimed for use in the near future at other locations.

Substantial savings in operating cost were effected in addition to the reduction of investment in property. In 1923 a total of 244,822 car-hours were operated compared to 212,311 in 1924, making a saving of 32,511 car-hours or 266,743 car-miles.

It has never been possible to estimate the effect of such improvement in service upon the earnings of the company, for no sooner had such changes taken place than a general industrial depression took place in the city. The forces at the Rock Island Arsenal alone dwindled to 500, when in prewar times a normal force of 2,000 men was retained. Observations have shown, however, a considerable increase in short-haul riding, and it is believed that the company has actually secured a great deal more business than would have been possible under the old system.

National Safety Congress in Cleveland

HOTELS Statler and Winton, Cleveland, Ohio, have been selected for the fourteenth annual safety congress of the National Safety Council, which will be held Sept. 28 to Oct. 2. The electric railway section will hold its first session Tuesday morning, Sept. 29. G. T. Hellmuth, claims attorney Chicago, North Shore & Milwaukee Railway, Chicago, Ill., will present a paper on the results of the bonus and award system, to be followed by a round-table discussion. "Bringing Safety to the Patron" is the subject on which S. R. Bowen, vice-president and general counsel Washington Railway & Electric Company, Washington, D. C., will speak. The discussion which is to follow will be led by E. K. Eastham, safety director United Railways of St. Louis.

At the second session, on Thursday morning, Oct. 1, G. B. Powell, assistant general superintendent Louisville Railway, will present a paper on "The Value of Employees' Suggestions in Electric Railway Safety," followed by a discussion which will be led by John H. Truett of the Baltimore Safety Council. "Accident Prevention Results Obtained from Enforcement of New Traffic Regulations as Applied to Vehicles and Street Cars" is the subject of a paper by Ralph W. Emerson, general manager Cleveland Railway. Victor T. Noon, supervisor accident prevention Chicago Surface Lines, will read a paper on "Getting Down to Brass Tacks," and A. L. Reynolds, receiver Washington-Virginia Railway, Washington, D. C., will lead the discussion.

The joint meeting of the electric railway section and the public utilities section, Sept. 30, will be opened by a paper on "The Value of the Local Council to the Railway and Utility," by C. B. Proctor, claim agent Memphis Street Railway. Isaiah Gordon of the Bureau of Safety, Chicago, Ill., will read a paper on "Concrete Results from Scientific Accident Prevention." The problems of system operation from the safety standpoint will be outlined by Charles P. Hubbard, chief system operator Detroit Edison Company.

Public Utility Good Will Advertising*

By NORWOOD W. BROCKETT
Director of Public Relations, Puget Sound Power & Light Company

ESPECIALLY when selling itself to the public the average public utility has in the past been the poorest salesman found in any business. Apparently it did not occur to these utilities that it was necessary to advertise the company itself, the service it was giving or what it was trying to do to help build up the community. For years we proceeded upon the theory that any business institution which treated its patrons courteously, which tried to give the best possible service at the lowest possible cost and which did its full share in the civic activities of the community must necessarily, in time, win the good will of that community.

We have now learned, however, that we must not only give good service at reasonable rates, but that we must also tell the people we are doing it and publicly disprove the unwarranted attacks made upon us. I know of only two ways in which this can be done—by the spoken and the printed word. I believe the spoken word to be far more effective with the limited number of people that can be reached, but to carry our message to the vast majority of our customers the printed word must be used. Unquestionably, the most effective method is through the advertising columns of the newspapers.

Gradually, the people are beginning to realize that the things which we are telling them are true and they are beginning to wonder why our industry is not permitted to conduct its business just as every other business is conducted—unhampered by constant political attacks. Please do not infer that I believe that our work has been accomplished. It has only been started.

In spite of what we have accomplished, the average citizen today still believes that there is something mysterious and unusual about the conduct of a public utility. He still believes that enormous profits are being made by these utilities. While he knows that the governmental bodies have made a colossal failure of practically every line of business endeavor in which they have entered and while he knows that the government could not run his business as economically or as successfully as he can himself, he still has a lurking idea that running a public utility is different and that possibly the city or the state or the national government could be successful in that particular

*Abstract of a paper presented before the Pacific Coast Advertising Clubs Association, Seattle, Wash., July 20, 1925.

business. He still believes that the water powers of the nation are being "grabbed" by "private interests" and used to exploit the people. He still fails to realize that every kilowatt of electric energy generated from these water powers is sold at a price fixed by his own regulatory body and that tremendous sums are paid in taxes each year as compensation to him for their use. These are some of the problems with which the average public utility is confronted and which can be solved only by taking the public fully into our confidence.

In closing, just a word of warning. Any utility whose house is not in order and which cannot give this full measure of information to the people had better pursue the old policy of saying nothing. Every public utterance by a representative of a utility and every printed line used by it must be the exact and literal truth. Let our opponents spread the falsehood, and while it is going to be a hard, discouraging battle, I am fully convinced that in the long run "truth must prevail."

Six and Eight Wheel Vehicles Coming*

By A. F. Masury
Vice-President and Chief Engineer
International Motor Company

THERE are almost unlimited opportunities in the field of transportation for the use of six-wheel and eight-wheel motor vehicles. Present types of motor vehicles are serving present needs in a more or less successful way, but when strict economies become the standard for measuring road transportation, a demand will be made for vehicles that will accommodate the maximum freight or passenger loads in the minimum of street space. These vehicles must be designed so as to permit speeds commensurate with common sense and safety. They will offer the utmost in passenger comfort. The growing need for more economical transportation is paving the way for larger vehicles. Their ultimate success lies in the future development of the highways and the development of larger vehicles that have a better distribution of the load on the road.

If greater loads are to be carried, more wheels must be called into play in order that the axle loads can be kept within reasonable limits and so that the weight can be distributed over as great a road area as possible. Possibly in the future we may see both freight and passenger carrying vehicles operating on caterpillar tracks developed to a state that will allow speed and at the same time be noiseless in operation. Six-wheel and eight-wheel motor vehicles can be used to good advantage at present. The principal reason for the increasing popularity of the six-wheel and eight-wheel vehicles is the demand from a critical riding public for riding comfort, but this type of vehicle has an equal and perhaps a greater field of usefulness in the trucking business.

*Abstract of a paper presented before the Metropolitan Section of the Society of Automotive Engineers in New York.

American Association News

American Nominations Submitted

NOMINATIONS for officers and new members of the executive committee of the American Electric Railway Association have been submitted to the executive committee in accordance with the provisions of the constitution. The names submitted will be voted on for election at the annual convention of the association, in Atlantic City on Oct. 6:

For president: F. R. Coates, president the Community Traction Company, Toledo, Ohio.

For first vice-president: W. H. Sawyer, president East St. Louis & Suburban Railway, East St. Louis, Ill.

For second vice-president: R. P. Stevens, president Republic Railway & Light Company, New York, N. Y.

For third vice-president: J. P. Barnes, president Louisville Railway, Louisville, Ky.

For fourth vice-president: Paul Shoup, president Pacific Electric Railway, San Francisco, Cal.

For treasurer: Barron Collier, president Barron G. Collier, Inc., New York, N. Y.

For members of the executive committee at large for the three-year term expiring 1928:

Railway members: G. A. Richardson, vice-president and general manager Chicago Surface Lines, Chicago, Ill.; L. H. Palmer, vice-president and general manager United Railways & Electric Company of Baltimore.

Manufacturer members: M. B. Lambert, manager railway department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.; S. J. Cotsworth, sales agent Lorain Steel Company, Philadelphia, Pa.

The report was signed by T. W. Casey, G. J. Kuhrts, C. D. Emmons, James H. McGraw, Thomas Fitzgerald, Richard Meriwether and Thomas N. McCarter, chairman.

Golf Plans for the Convention

SUNDAY, Oct. 4, the golf tournament will be held at the Northfield Golf Club, between 9 a.m. and 5 p.m. and is open to all delegates to the Atlantic City Convention. Prizes will be displayed at the club Sunday and will be awarded Wednesday night on the pier to winners on an eighteen-hole medal score. There will be a first and a second prize for class A with handicaps from 1 to 19, and a first and a second prize for class B with handicaps of 20 up to the outer limit of 35. Also a first and second prize will be given for a "kickers" handicap. A special prize will also be given for the "gololepher" who lands his ball nearest the pin on the drive on the fourth hole. A tape measure and pad will be provided at this location on which good records can be recorded. Here is a chance for the "hole in one" crew to do some good work.

W. J. Stanton, chairman of the golf committee, states that the Northfield Country Club can be reached by cars of the Shore Fast Line leaving from the Boardwalk and Virginia Avenue.

Each member will pay his own green and caddie fees of $3 and $1 respectively. All scores must be turned in not later than 5 p.m. Sunday, Oct. 4.

As previously announced the Sea View Country Club has extended its privileges to members of the association from Monday morning, Oct. 5, to Oct. 9. Green fees will be announced later. All that is necessary is to display the convention badge and pay the fees.

Convention Exhibit Arrangements Are Progressing

OVER 95 per cent of the space for the exhibit at the Atlantic City convention has now been paid for, according to Director of Exhibits F. C. J. Dell. Arrangements for setting up and lighting the big tent to be known as "Shelburne Court" are completed. The tent will be oval in shape and will hold a considerable number of automotive exhibits. Mr. Dell states that practically nothing more remains to be done before the exhibits begin to be set up on the pier.

Special Reports Available

SPECIAL reports have been prepared by the Bureau of Information and Service of the American Electric Railway Association and are available to member companies in good standing upon request, as follows:

Bulletin No. 41. Street Railway Fares in American Cities. A new edition of the Association's fare bulletin giving the fare systems in American cities, the cash rate, the ticket rate, transfer privileges, special children's, students' and workmen's rates, the date the fares became effective and the previous rates.

Bulletin No. 42. Interurban Fares. A new fare compilation showing for each interurban system the fare basis, whether mileage, zone or flat rate, the cash rate, the ticket rate, special commutation rates, and the date the rates became effective. The cities connected by the various interurban lines are also shown, together with the latest figures on the population served.

Bulletin No. 43. Fares on Electric Railway Bus Lines. This is the first special bulletin on bus fares ever issued. It gives for the bus lines substantially the same fare information as for the railway lines—the cash rate, the ticket rate, transfer privileges between railway and bus lines and any special rates allowed together with the effective dates of all fares.

Bulletin No. 44. Weekly Pass Results. Some recent figures on the results of the use of the weekly pass, the Sunday pass and the monthly identification card based on replies to an association questionnaire, together with a complete record of all of the developments in the pass idea since the first experimental trial six years ago. The material presented includes comparative statistical data on operations before and after the introduction of the pass and statements of executives of the companies as to the value of the pass, the results to be expected from it and its limitations.

In addition to the above supplements to the Wage Bulletin and Cost of Living Studies (Bulletin No. 42) have been prepared, bringing them up to date.

Maintenance of Equipment

Handy Press for Bearing Removal

ON THE Eastern Massachusetts Street Railway solid bronze armature bearings are used on all motors with the exception of the small high-speed Westinghouse No. 508 and G.E. 264 types, where ⅛-in. babbitt-lined bearings are used. Shop babitting has been entirely discontinued. Trained specialists fit bearings with proper clearance to

Each Carhouse of the Eastern Massachusetts Street Railway Is Equipped with a Press of This Type for Armature Bearing Removal

each individual armature shaft. These are retained on the same armature until worn out. In case of an armature failure the bearings are forwarded in place on the armature shaft by division car houses to the Chelsea Shops where replacement is made if necessary. Renewing bearings is thus entirely under the supervision of specialists at the shops, and armature bearing failures have been almost eliminated.

Cars are shopped for overhaul at the end of 100,000 car-miles and are equipped throughout with new armature bearings. Barring accident these bearings are expected to operate without replacement until the next overhauling period.

Each carhouse has been equipped with a Weaver Hi-speed press. This device consists of a framework of steel channels shaped like an inverted letter U. The table is made of two horizontal plates held in position by bolts through the frame. The plunger is moved either by a lever arrangement or by a hand wheel and screw movement. Although designed primarily for automobile repair work, this apparatus has proved very handy for armature bearing removal. Ordinarily it is possible to secure all the force needed in this work by the operation of the hand lever. When more is needed, however, it is obtained by a ratchet and screw arrangement.

Metal Grille for Door Engine Housing

RECONSTRUCTION of a number of cars of the Reading Transit Company, Reading, Pa., has included the installation of pneumatic door engines. These have been placed on a shelf above the platform doors. To keep down to a minimum the weight of the car, expanded metal lath has been used for the front of this housing, as shown in the accompanying illustration. It is thought by the company that there is little likelihood of dust getting into the door engine through the metal grill, because the apparatus is located high above the floor. On the other hand, circulation of air is thought to be advantageous.

Circulation of Air Around the Door Engine Is Accomplished by Use of Expanded Metal Lath

Armature Dipping Tank Economically Installed

ARMATURE repair work is done on the second floor of the Grand Avenue shop of the Connecticut Company, New Haven. Dipping and baking apparatus has been installed on the same floor. As it was impossible to put the dipping tank below the floor level, an open cylindrical tank, as shown in the accompanying illustration, was used. Armatures

Economical Dipping and Baking Apparatus Installed on the Second Floor of the Grand Avenue Shop of the Connecticut Company

are lowered into the compound by means of a chain hoist. After dipping, the armature is placed on a buggy of the type illustrated and rolled into the baking oven at the left. Dipping and baking of armatures have reduced the number of failures on the New Haven division from about 75 per month to less than ten. Failures of field coils, which were formerly about 100 a month, are now negligible in number.

27-In. Car Wheels Prove Economical

SUBSTITUTION of 27-in. rolled steel wheels having a 2-in. tread thickness in place of 26-in. wheels with a 1½-in. tread thickness on the Eastern Massachusetts Street Railway, Boston, Mass., has resulted in a substantial increase in wheel mileage on both double and single-truck

low-floor cars. The average life of the 26-in. steel wheels was about 65,000 car-miles. Since being equipped with 27-in. wheels 50 new cars have already been operated approximately 50,000 car-miles. The wheel diameter has been worn down from 27 in. to 25¾ in., which is equivalent to a wear on the tread of ⅝ in. It is expected by the company that a wheel mileage of at least 100,000 will be secured and it is thought entirely possible that even this figure may be exceeded.

Basing the calculation on the minimum figure it is found that the 27-in. wheel costs about one-third less than the 26-in. wheel per thousand car-miles, the figures being respectively $1.90 and $2.88. This substantial saving would, of course, be increased if it is found possible to obtain a higher wheel mileage than 100,000.

Copper Plating Builds Up Bearings

Wear on the Outside of Armature Bearings Is Compensated for by a Layer of Copper Applied by Plating Process

BY F. C. LYNCH
Mechanical Engineer, Kansas City Railways

WHEN worn on the outside from pressing in and out of the motor head armature bearings are being built up in the shop of the Kansas City Railways by copper plating. This plan was adopted after numerous experiments to determine an economical method of reclaiming these worn shells. The cost of this work is small in comparison with the value of the shell, and the copper plating has been found to give a permanent job which insures secure fit of the bearing housings.

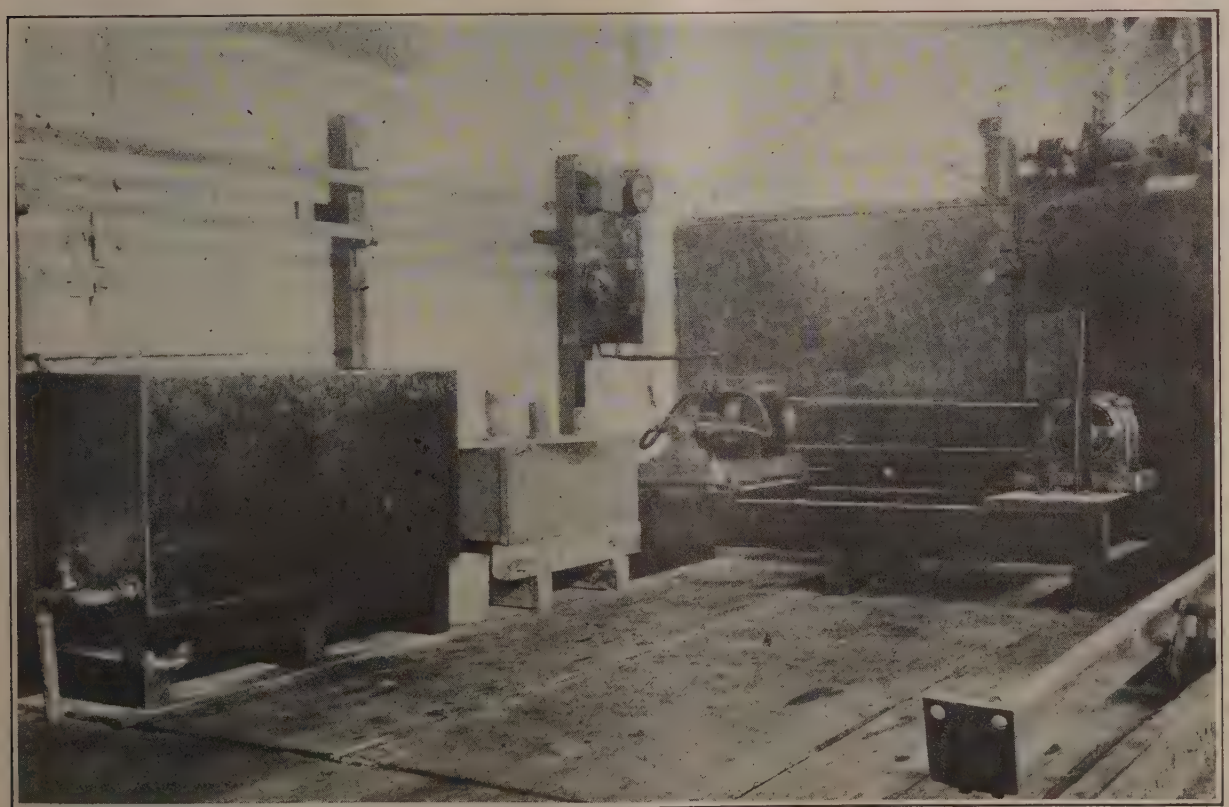
Copper plating is a more economical method of building up shells than a sleeve on the outside of the bearings. Another method tried at one time consisted in expanding the shell by forcing an oversize plug through the bore. This, however, did not prove satisfactory, because the expanded material would not hold tight in the armature head after being pressed in.

Until the process had been thoroughly tried out bearings were plated in an outside contract shop. The cost of the work was approximately 25 cents for each bearing, including cleaning. In comparison with a finished value of $3 to $5 per bearing, this proved to be a very small reclaiming cost, and equipment was installed for doing this work on a production basis in the railway shop.

The new plating plant is shown in the accompanying illustration. Current is furnished by a 6-volt, 500-amp. Hanson & Van Winkle plating generator, belt-driven by a 5 hp. General Electric alternating-current motor. The plating tank is rectangular, approximately 3 ft. high, 6 ft. long and 2 ft. wide. It is made up of ¼-in. steel plate with welded joints. Steam coils in the tank keep the plating solution heated to a temperature of 180 deg. F.

A current rate of between 150 and 200 amp. is used. This deposits about 0.002 in. of copper per hour and is considered to be the maximum rate which can be used without getting excessive porosity in the deposited material. Preliminary figures show that the approximate net cost of the work will be about 20 cents per bearing.

Successful results depend on the thoroughness with which the out-



This Plating Plant in the Shop of the Kansas City Railways for Building Up Worn Armature Bearings, Puts a Deposit of Between 0.003 and 0.007 In. of Copper on the Outside of the Bearing for About 20 Cents

side of the bearings are cleaned. Any particles of babbitt on the outside of the shell will cause blistering and loose material. For this reason all foreign material is removed with a steel brush wheel and the bearings are then placed in a tank containing a solution of plating cleaner furnished by the Oakite Chemical Company. This tank is heated by steam coils to raise the temperature to about the boiling point.

Most of the bearings are plated after babbitting. Some, however, have been plated first. Although copper deposit on the interior of the shell causes no difficulty, and actually tends to improve the adhesion between the babbitt and the shell, a tin or babbitt coating left on the interior of an old shell confines the deposit to those portions that have been cleaned. The amount of metal which can be deposited is limited only by the cost of the process. In practice, from 0.003 in. to 0.007 in. is usually sufficient to bring the shell back to standard size, or to compensate for a worn armature head bore.

The plating outfit may also be utilized for other purposes when not busy on bearings. Car and bus parts and trimmings may be refinished, as required, with other materials than copper. Special containers and materials for doing such work are being provided in connection with the new cleaning plant.

Overhauling Snow-Fighting Equipment

By F. T. McCann
Master Mechanic Syracuse and Oneida Lines, New York State Railways

WORK of putting snow sweeper equipment of the New York State Railways in first-class condition is now being done at the Wolf Street shop, Syracuse. In the program for overhauling, all trucks and broom motors are thoroughly inspected and cleaned. Bearings are renewed if necessary and all armature bearings are repaired. The controllers and circuit breakers are removed from the sweepers and are overhauled and tested in the controller department. Lamps, headlights and resistance are inspected carefully, cleaned and tested.

A new location has been chosen for the headlights. This is on top of the sweeper, instead of on the dasher, where they were originally. This location has proved better on account of their becoming covered with snow from the brooms when they were located on the dasher.

All broom shafts and broom-shaft bearings are removed and are examined for wear. New bearings are put on or the old ones are rebabbitted as is found necessary, and all keyways and keys are inspected and replacements made where needed. In reassembling the broom shafts, the end castings which hold the brooms in position are carefully spaced so that the brooms fit properly and will stay firmly in position, when they have been tightened by the bands or a clamp.

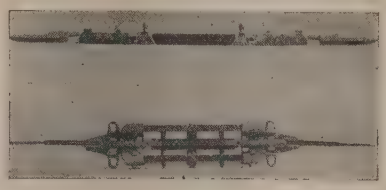
The clutches, chains and sprockets are examined for wear, and defects are repaired in trucks, wheels, wings and chains. After the sweeper has been taken apart, inspected, overhauled and reassembled, the working parts of the broom mechanism are given a thorough running test to make certain that all parts are working properly and also to detect bearings which are liable to run hot. The bodies of the sweepers are given a thorough inspection and repairs are made where necessary, after which the sweeper is passed through the paint shop and is repainted.

New Equipment Available

Section Insulator Has Double Insulation

DOUBLE insulation, bronze arcing tips and renewable underrun are features of a new design of section insulator manufactured by the Westinghouse Electric & Manufacturing Company.

In section insulators the chief requirements are to break a motor-load current up to 750 amp. and 650 volts under all conditions without holding the arc, and to insulate trolley lines from each other and from the ground, between 0 and 750 volts without noticeable current leaks,



This Type of Insulator Has Double Insulation in Form of Air Gaps and a Hickory Runner

under all weather conditions. This new design of section insulator meets these requirements through the use of double insulation, a hickory runner and two air gaps. It has 8 in. of minimum runner insulation. This hickory runner is very suitable for the purpose and in addition, is able to withstand severe weather conditions due to the special treatment that it undergoes in construction. The additional insulation in the form of air gaps has bronze arcing tips of high tin content on both sides, an entirely new feature in air-gap insulation. These skewed air gaps will break a current under all weather conditions, and have ample blow-out surface.

The main body of the insulator is made of such material that it will last indefinitely. End castings are of high-grade malleable iron, thoroughly cleaned, treated and zinc flooded. All bolts and studs are made of phosphor bronze, while end clamps and arcing tips are of bronze with a high tin content.

Smooth underrun is another feature and the complete underrun can be replaced without removing the insulator from the line. All wearing parts can be replaced by removing two hexagonal nuts, without disturbing suspension spans, trolley wires or insulator bodies. To aid in eliminating all hammer blows as the car approaches, bayonet approaches are used.

The underruns are interchangeable on both the single or double beam insulators. The single beam type, through the use of double-end wedge and groove grip at the ends of the beam, gives great holding power without decreasing the cross-section of the beam at any point carrying the load. This type is used advantageously on pantograph, wheel or shoe collection because the runner forms the lowest part of the insulator. It is particularly useful in city work where speed, current and wire tensions are the more uniform and service facilities are maintained. The double beam is for the purpose of meeting more severe conditions of excessive tension and current loads. It will break arcs above the requirements and give smooth trolley wheel transition under all normal operating speeds.

The News of the Industry

Oregon Commission Rejects Plea for Lower Fare

The Public Service Commission of Oregon recently dismissed a petition of the Housewives Council of Portland which sought to obtain lower fares on the lines of the Portland Electric Power Company. H. D. Wagnon acted as intervenor for the Housewives' Council at the hearing held in Portland on June 23 and 24. He contended that the only solution of the problem was municipal ownership of the traction lines and operation under the direction of the municipality.

The commission in its decision said that the plaintiff had introduced testimony showing comparison of fares charged by the Portland system and other similar lines; that some of these were municipally owned, but that since only a small number of cities in the United States were used in the comparison and in many instances the exact conditions surrounding operation in those cities had not been available, the evidence submitted could not be considered to be controlling. The commission said that while there was a slight discrepancy between the exhibits submitted by the company and the engineers of the commission, showing the rate of return during the past year, it was apparent that the company had not earned more than an amount considered by the courts generally as being a fair return on the investment in the property.

It was found by the commission that the company had earned less than a reasonable return, the record showing an earning of less than 4 per cent for the year 1924. The commission stated that in a previous order it had made recommendation designed to secure the remission of bridge tolls, franchise taxes, paving requirements and other similar burdens and thus relieve the car rider, but this plan when referred to the voters of Portland had been rejected. The commission therefore hesitated to take further action along that line.

The original petition of the Housewives' Council was filed with the Public Service Commission more than two years ago.

Suburban Line at Chicago Forced to Suspend

Bus service has taken a sudden spurt in territory served by the Chicago & West Towns Railways, operating in eight cities in the Chicago metropolitan area. As the result of a civic agitation against the company all service has been stopped in Berwyn, Ill., where several accidents have occurred recently. The Berwyn situation was laid to track in bad condition which company officials said they could not afford to repair unless accorded a suitable franchise on which to finance improvements.

Berwyn, and companion cities of Cicero, Lyons, Riverside, LaGrange, Maywood, Forest Park and Oak Park embracing 250,000 persons are dependent on the lines for inter-urban service. However the Councils of the towns in most cases have not regarded the lines of sufficient local importance to treat the problem of financing constructively. Franchise troubles have resulted.

A car on which 100 Sunday picknickers were riding left the track Aug. 30 and struck a building. There was much fright and some injury. For a short time the city of Berwyn stopped all traffic on the lines and immediately upon resumption Sept. 1, there was another accident at the same place. The Council ordered an injunction against moving the wrecked car and caused the arrest of a repairman.

Early on Sept. 2 approximately 1,000 "vigilantes" working systematically with axes, hammers and crowbars, tore up large sections of track.

"The derailed street car will not be permitted on the rails until the company promises to repair the street," Mayor Janda announced.

The Berwyn City Council has repeatedly refused to extend to 1945 the franchise, which expires in 1937. An officer of the railway said:

> It's small town stuff. Of course we're sorry the accident occurred, but there are two sides to the track question. We are simply holding out for our business rights.

The company operates about sixty cars on 70 miles of track and has a rapidly growing fleet of buses operating on all arterial highways in the territory. It has half a dozen trunk lines, including one to the huge Hawthorne works of the Western Electric company. A 10-cent fare is charged.

News Interest High at Philadelphia

Wage Changes, Possible Operation of Taxis by Railway, Return to Five-Cent Fare Unit and Attack on Bankers Among Events of Fare Hearing and Outing Utterances

MANY things of interest to railway men other than the fare hearing are going on in Philadelphia. Still that is the most important topic of comment. Thus at a recent session it was brought out by Dr. A. A. Mitten, in charge of the company industrial relations, that a plan was under consideration which would provide that fluctuations in wages, after a base scale had been agreed upon, would be adjusted to fluctuations in the purchasing power of the dollar. The maximum wage now paid the men is 77 cents an hour.

Men Suggest Change

He said that although Mitten Management had felt for some time that the basing of the men's wages upon a three-city average—which originally was a war-time expedient—was not an altogether satisfactory plan the suggestion of a change came from the employees themselves.

In discussing the workings of the Mitten plan, the witness said:

> Each worker is given greater opportunity to become a capitalist himself and, at the same time, there is removed from the vocabulary of the most radical the most effective weapon by which distrust and disturbance are fomented.
>
> In fifteen years of operation of the co-operative plan, never once has there arisen any question upon which men and management have been unable to come to an agreement. The provision for arbitration, accordingly, has never been invoked.

Charles Elmquist, St. Paul, Minn., lawyer, who was chairman of the Federal Electric Railway Commission, was another witness who indicated possible new things ahead.

Outstanding in his testimony was a suggestion that "the full and complete development of the transportation service in Philadelphia should also embrace control and management of taxicabs."

An Editor Explains

After describing conditions in a majority of cities throughout the United States, as found by the Federal investigators in 1919, Mr. Elmquist said:

> We heard that the Philadelphia Rapid Transit Company was operating successfully on a 5-cent fare, with certain transfer charges, and we wanted to know how this could be done in a period of advancing costs and with labor disturbances general throughout the country.
>
> The ability of the company to carry on successfully during that troublesome period was not due to the heroic efforts by the management in 1918-19-20, but resulted, I firmly believe, from a spirit of comradeship then existing between men and management and the recognition by employer and employee of the square deal in business management. It is an achievebent—a progressive development—that challenges the admiration of students and investors and prompts a searching inquiry into the methods that were used to bring it about.

John M. Shaw, editor of *Service Talks*, a P. R. T. publication, testified as to the function of that organ. When C. Oscar Beasley questioned Mr. Shaw on the accuracy of the publication Public Service Commissioner Evans remarked that he did not see that the accuracy of *Service Talks* entered into the matter. The question was not whether the paper was accurate, but whether its publication was a justifiable expense. Mr. Beasley did not

press his question, but remarked that he thought the matter was not at all irrelevant.

In a recent statement *Service Talks* said:

> The bankers who induced us to undertake the saving of P. R. T. in 1911 deserted us in 1920. This proved our greatest opportunity. It resulted in the first tangible evidences of the willingness of labor to surpass capital in co-opration, when the men offered their million-dollar saving fund without interest to take the place of the deserting bankers' credit. It also released us from a choking incubus, and so improved our credit that we were later able to sell 7 per cent preferred stock to car-riders at par without paying any commission.
>
> The present fare fight originated largely through misinformation and distrust engendered by the machinations of antagonistic capital. It has, however, given us a wonderful opportunity to prove through testimony of the most eminent authorities the worthwhileness of our plan, and to show by proven performance that we can be trusted to operate well and economically, and in the best public interest.

Thomas E. Mitten, chairman of the P. R. T. executive committee, told 12,000 employees of the company, their families and friends, at Willow Grove Park, that the members of the Public Service Commission "did not dare" accept his invitation to attend the second day of the company's annual outing, to be held at the park. More important than the news about this defi is the statement made by Mr. Mitten that the 5-cent fare must come back. Mr. Mitten said in part:

> I was thrilled a few minutes ago, when our band, led by John Philip Sousa, played 'March of the Mitten Men,' to the tune of 'Onward Christian Soldiers.' It thrilled me, because that song and tune typifies the spirit of our organization. It should inspire us to continue the fight against those who ought to know better than to fight against us as they do.
>
> Many organizations seem to be afraid to let their workers get ahead; afraid they would demand too much if they had something laid aside. But I tell you the best citizen is he who has something saved and something to lose. The spirit of labor today seems to be to do less and get more, but P. R. T. employees are doing more to get more. And we are merely helping others to help themselves and that's the biggest thing work can do. Our results are due to what our workers have done at our suggestion.
>
> We don't say that our plan is the "Golden Rule," but it is based upon that Bible teaching as much as anything can be. We can't provide that which is not. In order to have more, people must produce more. There can't be comforts for all unless there is sufficient production.
>
> Our fight is your fight and our biggest job is to make our opponents realize the real worth of you men and the value to you of the organization to which you belong. Don't rest on your oars. We are right, you are right, and our opponents are all wrong.

Bus-Railway Merger Talk Renewed in St. Louis

Negotiations looking to the merger of the People's Motorbus Company, St. Louis, Mo., and the St. Louis Bus Company, subsidiary of the United Railways, have been under way in Chicago and an announcement that a deal has been concluded involving a plan for complete refinancing the street car company is anticipated within the next few days.

Under the terms of the arrangements, details of which will not be made public, it is said, until they have been approved by city officials of St. Louis, probably not for two weeks or more, an entirely new financial interest will enter the St. Louis traction system and furnish the new finances needed to put the railway on its feet by coordinating the electric and bus lines.

In connection with the new negotiations the name of a public service organization dominant in the Middle West has been mentioned.

John A. Ritchie, Chicago, president of the Omnibus Corporation, which controls the People's Motorbus Company, admitted to interviewers at the Chicago meeting that a proposition to merge the bus and the railway systems of St. Louis was under consideration and that a deal might be put through. He is reported to have said:

> The People's Motorbus Company is not going to sell out to the railway. Whatever is done will be in the nature of a consolidation of the two financial interests.

Despite Mr. Ritchie's statement the impression prevails in St. Louis financial circles that a virtual sale of the bus company to the railway will occur.

The People's Motorbus Company began operations in St. Louis in May, 1923, and a year later the United Railways interests began discussing the purchase of the bus lines. Negotiations were broken off when holders of the St. Louis Transit Company bonds declined to advance the funds needed to purchase the bus properties. Representatives of the bondholders declared that the price asked was too high.

Later the United Railways, through the reorganization committee, organized the St. Louis Bus Company to furnish service auxiliary to the railway. On a few occasions the operations of the rival bus companies conflicted.

Another Municipal Ownership Fiasco

Mayor Hylan of New York has agreed to the resumption of surface car traffic by the Brooklyn-Manhattan Transit Corporation on the Williamsburg Bridge to replace the municipally operated line. Business men who appeared at City Hall told the Mayor that the old B.-M. T. bridge service was better than the present one because it was an unbroken through service, while the city's own shuttle cars now merely run back and forth across the bridge.

Mayor Hylan said that he would give his permission for the B.-M. T. to put the cars back if the company would consent. He said that if the B.-M. T. refused to pay for the connection, the city would do so within 48 hours on being informed that service would be restored. He promised the merchants to do everything he could to see that better service was given on the bridge. While the stopping of the bridge locals operated by the Department of Plant and Structures was not within his power, the Mayor said, he would suggest it to the Board of Aldermen.

This is the line on which the city raised the fares some time ago because of its admitted inability to curb pilfering on the part of employees. When the line started three tickets were sold for 5 cents. The fare is now 2 cents straight.

Boston Solves the Labor Turn Over Problem

The family of the average trainman on the Boston Elevated Railway, Boston, Mass., consists of less than two children, while the pay of the average carman is on a basis of five children. So said Edward Dana, general manager of the system, who testified before the wage arbitration board recently. Mr. Dana also said that practically all the men receive more than the minimum daily wage, their wage being 72 cents an hour and eight hours of work a day for the two-men car operators.

Mr. Dana was cross-questioned by H. Ware Barnum, counsel for the trustees of the Elevated. He then presented details of the numbers of members in the families of the men in the employ of the company. These had been reduced to groups ranging from one child to as many as eight, of whom there were several families.

Mr. Dana filed a number of exhibits showing the reduction of the labor turnover since 1919. Prior to that date, he said, the company hired and discharged large numbers of men every year. In the period from 1904 to 1919 the number of new carmen hired ran as high as 2,885 in one year. In 1923 only 237 new men were hired and in 1924 this figure was reduced to 99.

An income of $2,000 a year for motormen and conductors is not enough, and a proper wage on the most conservative basis would be $2,300 a year. This was the opinion expressed at the wage arbitration hearing on Aug. 28 by W. Jett Lauck, Washington, D. C., an economist retained by James H. Vahey, counsel for the carmen of the Boston Elevated Railway.

Mr. Lauck is the author of a book quoted recently by H. Ware Barnum, counsel for the Boston Elevated trustees, in which he states that $800 a year is the figure necessary for a family income. Under Mr. Vahey's cress questioning, it was brought out that Mr. Lauck had changed his opinion. Mr. Lauck had recently testified before the Public Service Commission of Pennsylvania and said that the cost of living in Philadelphia and Boston was about the same. In Philadelphia the carmen receive approximately $2,000 a year.

Mr. Vahey also examined Raymond P. Delano, who represented the United Improvement Association and other community organizations, about the authorship of an open letter of protest against any increase in wages.

Rate Reduction Suggested as Revenue Producer

Maj. W. E. R. Covell, public utilities assistant to Engineer Commissioner Bell at Washington, D. C., was quoted as follows recently on the local street railway situation:

> What the street car companies want is more income. They could get an increase of fare any time they want it by going into court and demanding a rate that would give them a "fair return" on investment. They are not earning that now. They know and we know that the courts would give it to them.

It is generally supposed that the reason they do not do this is because they fear that increased fare would yield less return by loss of patronage. I am wondering if a reduction of fare for regular patrons, selling them four tokens for a quarter instead of six for 40 cents, and an increase of cash fare from 8 to 10 cents, with free universal transfers, would not solve the problem.

This would mean a reduction of fare for Washingtonians. The increase would come out of the pockets of visitors to the city. They are the principal ones who pay cash fares.

Major Covell also discussed the weekly pass system in vogue in some other cities.

A Different Kind of Automobile Story

The State Corporation Commission of Virginia has requested Commissioner L. C. Major to resign as a result of publicity given to his reported acceptance of the gift of an automobile by the State Bus Association. Mr. Major has asked time to consider the matter.

Fewer Accidents in St. Louis

A reduction of 5,642 accidents on the property of the United Railways, St. Louis, Mo., for the year ended March 31, 1925, is reported in a special bulletin of the St. Louis Safety Council, being mailed to many thousands in St. Louis and elsewhere in the United States. The reduction represents a cut of 21.8 per cent in accidents compared with the previous year. For the year there were 20,269 accidents, compared with 25,911 the previous year. The bulletin further points out that in accidents that can be traced or charged to the negligence of employees there has been a reduction of 75 per cent.

During April, May and June, following the period of comparison, accidents on the United Railways were cut 30 per cent below a similar period in 1924. The substantial decrease in accidents is largely traceable to the accident prevention campaign which was launched by the company in June, 1923. However, the safety organization plan did not go into effect until February, 1924.

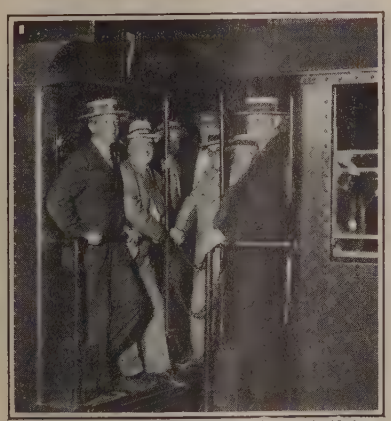
In substance the plan provides for a safety committee of motormen and conductors in each of the thirteen carhouses. A spirit of rivalry is created by offering each month a prize of $100 to the carhouse with the best showing for that period. Each operating unit is equipped with a large wooden clock with two movable hands, red and black. The black hand is set each day at the number of accidents for that date the previous year and the red is later set to show the comparison with this year. The slogan of the carmen is, "Keep the red hand back."

"Smile Route" Slogan in Dallas.—The Dallas Railway, Dallas, Tex., recently started a series of car card advertising in which the company is building up its publicity around the "Smile Route" slogan. The company's intention is to develop the idea that the street car service is a "smile" service because of its convenience, economy, freedom from parking worries, traffic congestion and accidents.

Triplex Car for Brooklyn Demonstrated

Representatives of the Transit Commission and of the Board of Transportation of New York City were among those invited to witness the demonstration on Aug. 31 of the new B.-M. T. triplex car, a new type of vehicle which it will soon introduce in numbers on its system. The triplex which is really three cars linked into one is expected to improve ease of riding and "reduce substantially the amount of noise in the subway."

Four cars, which will constitute a maximum train, have been built for the company at a cost of nearly $300,000. Each car comprises three sections permanently united and mounted on four trucks, one at each end and one at the point of contact of two sections. The mounting of the three sections of each car on four trucks, instead of six, as with the present cars, will greatly improve operating conditions in respect to noise and ease of riding. This also makes possible the construction of short inclosed passageways without doors between sections so that passengers may readily pass from one section to another, thus differing from the present B.-M. T. subway cars.



© *P. & A. Photos.*

Officials on Trial Trip—Reading from Left to Right: C. E. Stephens, E. P. Waller, J. F. Eagan, W. G. Gove, F. H. Shepard, T. Beran and W. S. Menden

These triplex cars are equipped with the latest safety devices that have been developed in respect to method of operation, door control, emergency lights, etc. Each car is 137 ft. long, with seats for 160 passengers and with six sliding doors on each side, each 4 ft. wide, so as to permit rapid interchange of passengers at stations.

Two of these four cars are equipped with motors and controllers designed and built by the General Electric Company and the other two by the Westinghouse Electric & Manufacturing Company. Likewise, two cars have door control equipment as manufactured by the Consolidated Car Heating Company, and the other two by the National Pneumatic Company.

Some of the details of the cars were given by W. S. Gove, superintendent of equipment, in papers presented by him before the New York Railroad Club and the New York Electric Railway Association, abstracts of which were published in the ELECTRIC RAILWAY JOURNAL for Dec. 6, 1924, and July 4, 1925.

After the cars had been displayed they were run up to 57th Street and back with newspaper men aboard. Gerhard M. Dahl, chairman of the board, and W. S. Menden, president of the B.-M. T., rode from the Court Street station in Brooklyn to the City Hall station. Among the B.-M. T. directors who made the trip were Robert A. Shaw, James H. Post, Arthur S. Somers, Charles Hayden, Benjamin H. Namm, Albert H. Wiggin, Charles A. Boody, William H. English, Albert H. Strauss and Matthew C. Brush.

Power Shortage Causes Service Reduction in Georgia

A reduction of 11 per cent in Atlanta's street car service, owing to the shortage of water in all reservoirs of the Georgia Railway & Power Company, was put into effect on Aug. 19 following the granting of such permission by the Georgia Public Service Commission. A further cut in service to 26 per cent later on, was also authorized by the commission, if relief in the form of rains is not forthcoming and the supply of water in the reservoirs of the company continues to run down. In its order, the commission said that it was far better, in the public interest, to conserve the supply of water now on hand by using only enough power to meet public necessities than to incur the risk of completely exhausting the storage reservoirs.

Macon, Ga., is another city where service has been cut due to the long drought and consequent failure of hydro-electric power sources. The cut in service was granted by the City Council when representatives of the Macon Railway & Light Company declared it was vitally necessary. Where service has been maintained every fifteen minutes during the day and every 7½ minutes during rush hours, the cars now run 30 and fifteen minutes apart.

Because of low water in the Savannah River service has been curtailed between Augusta, Ga., and Aiken by the Augusta-Aiken Railway & Electric Corporation. The cars will run on a two-hour headway instead of one hour. This curtailment will continue only as long as necessary.

Franchise Negotiations Ahead in Richmond

The first move of the Virginia Railway & Power Company, Richmond, Va., under the Stone & Webster management to obtain a franchise for unified motor bus and street car operation on a plan to cover virtually the entire city and its suburbs is expected to be made at the next scheduled meeting of the streets committee of the City Council. While no announcement of the company's intended proposal has been made, it is expected to follow closely the original plan submitted by the former Gould management several months ago. As indicated in the ELECTRIC RAILWAY JOURNAL for Aug. 29 negotiations may be reopened for the purchase of the Richmond Rapid Transit Company's motor bus properties.

Detroit United Hopes to Meet Its Franchise Obligations

William D. Fitzgerald, counsel for the Detroit United Railway, Detroit, Mich., told a meeting of city officials from the river district in Wyandotte about plans for the future of the company. Mr. Fitzgerald announced the tentative plans at a meeting called by Mayor H. S. Amiot, of Wyandotte, in an effort to get action on the proposed $150,000 improvement agreement between the towns and the interurban. The meeting was attended by representatives from River Rouge, Wyandotte, Sibley, Riverview and Trenton.

Among other suggestions offered by Mr. Fitzgerald toward economy that he claimed would enable the D. U. R. to carry out the promised track and street improvements were: one man cars, skip stops, abolishment of the $15,000 charge to Wayne County for crossing the West Jefferson Avenue bridge, a new terminal at the end of D. S. R. lines and a possible fare increase. The fare increase, he said, would be the last resort.

In reply to demands of the various councils, Mr. Fitzgerald said funds for improvements had been exhausted.

The railway is at present operating through the downriver towns on a day-to-day agreement under the promise of the extensive improvements.

Georgia Interurban Allowed Fare Increase

With the issuance of an order by the Georgia Public Service Commission, effective Sept. 1, the Atlanta Northern Railway, an interurban line operating between Atlanta and Marietta, Ga., has won its point for an increase of 20 per cent in fares. The increased fare to Marietta, under the new schedule of rates, will be 7 cents, and the increased cost of a book of 54 round-trip tickets will be $1.60.

The case was heard by the commission on June 3, when the plea of the company for a higher rate was supported by the city officials of Marietta and opposed by Judge Newt Morris of Marietta and Mayor Gid Morris, of Smyrna, Ga.

The fare increases are an outgrowth of the situation caused last spring when the Atlanta Northern Railway tore up a section of its track and abandoned service between Atlanta and Marietta on the claim that unfair jitney and bus competition had rendered the line unprofitable. Following the demands of the company, the City Council of Marietta agreed to eliminate jitneys and buses from its streets and to accept a higher rate of fare on the line. The jitneys and buses were at once eliminated by passage of a city ordinance, and service was restored. The question of fares, however, had to go before the State Public Service Commission.

If this increase does not put the road upon a self-supporting basis, the people of Marietta have agreed to a second increase in fares at a later date.

Fares and Wages Up in Richmond

Effective on Sept. 1, when the 7-cent fare authorized by the State Corporation Commission becomes effective, the wages of motormen and conductors of the Virginia Railway & Power Company in Richmond, Norfolk, Petersburg and Portsmouth were increased on a graduated scale by order of President Luke C. Bradley. The increase ranges from 2 to 5 cents an hour. Previous to Sept. 1 the fare was 6 cents.

Back to the Days of the Hoop Skirt and the Horse Car

One of the most interesting features in the parade held in Salt Lake City, Utah, on Aug. 18, in connection with the city's annual "Round-up" event, which consists of riding, roping and bucking contests by cowboy performers, was a pioneer-era street car operated half a century ago by the predecessor of the Utah Light & Traction Company. The car was driven by Joe Snarr, a present-day employee of the traction company, who also drove the more primitive form of transportation in Salt Lake City for more than eight years.

This entry by the traction company in the parade tied in admirably with the "old times" idea featured by all of the participants. The passengers in the old mule car were members of a stock company, who portrayed this colorful picture of the old West in quaint costumes of the period. During the course of the parade several of these "passengers," stationed at intersections along the line of march, sallied forth from the curb in their picturesque dress to hail and board the car, just as was done as a matter of course in "the good old days."

Wild Western Days Re-enacted

Springfield Surveys Puts Changes Up to Merchants

On the basis of the records of a recent transportation survey of Springfield, Mass., conducted by the local planning board, it is suggested that, without detriment to either shoppers or merchants, present congestion on Main Street may be reduced by taking off that street a number of the lines of the Springfield Street Railway now routed through it. A reduction in some schedules and an increase in others may be necessary. The average and maximum loads on the various lines are in some cases notably unequal. A survey of these records also indicates that a large number of stops can be eliminated without seriously inconveniencing the public. It is not improbable that a redistribution of cars on the various lines, and substantial rearrangement of routes will be made if the railway accepts the findings.

The contention of City Traffic Expert J. T. Battis Woodruff that the railway traffic is immoderately heavy on Main Street and that it is a large factor in congestion on that thoroughfare is borne out by the records on all lines passing through Main Street. Not only during the rush hours, but throughout the entire day, the speed of cars between the Arch and State Street is much lower than it is anywhere else.

Several months ago Mr. Woodruff proposed a rerouting of electric railways which would take all Hill section cars to Dwight Street and over a loop around the Market Square block instead of sending them into the Dwight-Lyman-Main loop as is now done. This would, he believed, materially reduce the congestion on Main Street and speed up the movement of cars on all lines. As it meant walking only an extra block for the city's shoppers, he did not feel that it would prove a serious inconvenience to the traveling public.

H. M. Flanders, manager of the railway, commended the suggestion, although he doubted whether the public would be willing to walk this extra block. Retail merchants declared that the citizens should be able to leave and board cars on Main Street, regardless of the effect on traffic. They considered it an unnecessary imposition to require shoppers to walk to Dwight Street for a car.

Expansion Program for Chicago Elevated

Through an operating agreement made between the Chicago Rapid Transit Company and the Chicago, Aurora & Elgin Railroad, "L" service will be extended from the present terminus of the Garfield Park line at Desplaines Avenue in Forest Park, west to Maywood and Bellwood and southerly from the latter village to Roosevelt Road over the Chicago, Westchester & Western Railroad, a line now being built.

Construction engineers estimate that the new railroad will be completed and ready for operation early next summer. It is planned to run a twelve-minute service to these western suburbs, which will bring them almost as close to the heart of the city as is Evanston.

Detroit Transit Measure on November Ballot

Detroit will vote on rapid transit at the November election. This was decided at a recent conference of the Common Council with Mayor John W. Smith and executives of the rapid transit commission present. The conference approved the draft of a proposed amendment to the city charter conforming to the state enabling act passed by the legislature last winter. The proposed charter amendment sets up in the city governing code rules for the financing and construction of a system of quicker transportation than the city now has. Before actual construction work can be begun, in the event the electorate approves the proposed charter amendment in November, proposed routes and estimates of cost must be approved by the council and also by the people at another election.

Few changes were made in the draft of the proposed rapid transit charter amendment, which was drawn up by P. J. M. Hally, counsel for the transit commission. On suggestion of Councilman John C. Nagel and Mayor Smith, alteration was made in the machinery for the execution of rapid transit contracts. They wanted the council to have final approval of contracts, particularly those entered into with adjacent municipalities such as Highland Park, Hamtramck and River Rouge. The plan for Detroit rapid transit was referred to in the ELECTRIC RAILWAY JOURNAL, issue of Aug. 15, p. 254.

Survey at Los Angeles Nears Completion

The survey of the lines of the Pacific Electric Railway and the Los Angeles Railway in the city of Los Angeles, undertaken jointly by the engineering departments of the Railroad Commission, the Board of Public Utilities of the city of Los Angeles and representatives of the railway systems, for the purpose of reaching a conclusion, if possible, respecting the possible consolidation of street railway properties in Los Angeles, is now nearing completion and a report will be rendered at an early date. This investigation has a threefold object, to determine whether the lines should be taken over and operation by either the Pacific Electric Railway or the Los Angeles Railway or by the city of Los Angeles as a municipal enterprise.

Home Rule for New York Upheld —Bus Decision Delayed

The Court of Appeals of New York on Sept. 2 handed down a decision by Chief Judge Hiscock upholding the Home Rule Amendment of Article XII of the New York State Constitution and the City Home Rule Statute adopted under authority thereof, but reserved decision until the October session of the court on the right of the city of New York to adopt laws providing for the municipal ownership and operation of bus lines. At that time a formal decision will be handed down with accompanying opinions.

It would appear that the brief filed by the Home Rule Commission, as a friend of the court, in which it pointed out the great public mischief that would be accomplished by declaring the Home Rule Constitutional Amendment unconstitutional played an important part in bringing about a speedy decision of the Court on the constitutionality of the amendment and the Home Rule for Cities law.

That the court is inclined to proceed judiciously in the matter of a determination as to just how far a city may proceed under Home Rule is evidenced by the reservation of its decision of the question of municipal ownership and operation of bus lines until the October session.

Witt vs. Sanders on Cleveland Subway Suggestion

Three new bus lines are to be added by the Cleveland Railway, Cleveland, Ohio, before the middle of September. These will be the West Park, Nottingham and Lee Road lines.

Double deckers for the Carnegie and Lake Avenue lines, running east and west, will not begin to arrive until Sept. 15, according to Joseph H. Alexander, vice-president of the railway.

At the meeting of the City Council on Aug. 31, Councilman Peter Witt, former city traction commissioner, proposed a system of subways estimated to cost $30,000,000. He suggested three lines from Public Square to the city limits along Superior Avenue east; from the Square to city limits by way of Cedar Avenue, southeast; and from the Square to West Park, by way of the Edgewater Parkways and West 117th Street. Mr. Witt challenged anybody to produce a better plan.

Councilman Fielder Sanders, also a former city traction commissioner, declared that it would cost $80,000,000 to build the subways and further stated that the suggested lines would not be profitable. The proposed bond issue was voted down by 18 to 8.

News Notes

May Put Skip-Stop in Force.—The United Railways & Electric Company, Baltimore, Md., is planning to start the skip-stop system on some of the longer lines, subject to approval by the Public Service Commission.

Significant Hearing Postponed Indefinitely.—Railway cars will continue to run in Florence, Sheffield and Tuscumbia, Ala., for some time to come. Recently the Alabama Power Company filed a petition with the Alabama Public Service Commission requesting that the company be allowed to discontinue railway service in the Tri-Cities and substitute buses. The hearing by the Public Service Commission set to be held in Florence on Aug. 26 was postponed indefinitely.

Can Use Cars Without Charge.—The United Railways & Electric Company, Baltimore, has granted permission to the members of the police force performing duty in the public parks of the city to use the street cars free.

Will Extend Pass Plan.—As a result of the success of the weekly pass on the lines of the Worcester Consolidated Street Railway in Leominster, Mass., the company is planning to extend this system to the Southbridge and Spencer-Leicester line. The passes in Southbridge will be good within the town limits. They will cost $1. The Leominster passes cost 75 cents.

Trolleys Will Continue.—The Connecticut Company has abandoned plans to substitute buses for trolleys on the Housatonic River line between Stratford and Shelton, Conn.

P. R. T. Car Held Up.—The crew of a Philadelphia Rapid Transit Company payroll car was held up on the morning of Aug. 28 at Sixth and Willow Streets. Philadelphia. Pa., and $6,153 stolen. On Aug. 29 fifteen suspects were arrested.

Copies Methods of Steam Lines.—The Citizens' Traction Company, Oil City, Pa., will name its street cars in the future the same as Pullman cars. The first of the newly-painted cars to be placed in the service was in use on the city lines on Aug. 24 and bore the name of J. B. Smitman, pioneer oil man of the section, who built the first trolley line in Oil City.

Weekly Tickets Sale Discontinued.—The Owensboro City Railroad, Owensboro, Ky., which is in the hands of a receiver has discontinued the sale of weekly tickets and has returned to the 7-cent fare with four tickets for 25 cents.

None Oppose Higher Fare.—At the hearing on the request of the Sault Ste. Marie Traction Company, Sault Ste. Marie, Mich., for a 10-cent single fare and four tickets for 30 cents there was no opposition to the proposal.

Baby Blue Birneys in Jacksonville.—To attract attention to its rolling stock the Jacksonville Traction Company is operating its first baby blue Birney car in Jacksonville, Fla. The car is trimmed with the usual black border lines, but the windows are trimmed in ivory. Another car of the same type, which is appearing on the streets, is painted in the orange hue recently adopted by the company, with baby blue trimming on the windows and the usual black line borders and numbers.

Taxi Operator Offers to Run Line.—Thomas H. Madigan, a taxicab operator in Lincoln, Ill., is reported to have negotiated with the city officials to take over operation of the Lincoln Municipal Street Railway, submitting the same proposal as that under which Guy LaBaw, present manager, operates. Several months ago Mr. Madigan made a proposition to the City Council to operate the Lincoln property. Operation of the system originally was profitable, but some years ago the company failed and the Council rather than abandon the line took over operation. By strict economy it was possible to operate without loss, but during the past year the expenses have exceeded the receipts. Then came talk of operating buses and finally of suspending the railway altogether. On top of the suspension talk comes the second offer of this taxicab operator, to take over the operation of the line.

Recent Bus Developments

Bus Operator Buys Railway Property

For the purpose of operating a system of bus lines in Columbia, S. C., to supplant the present railway, the Carolina Transit Company, capitalized at $100,000, has been organized to begin the operation of the new transportation system about Oct. 15. The president of the new company is Maj. L. W. C. Blalock. He is president of the Palmetto Transportation Company, which operates Columbia's yellow taxis and five interurban bus lines out of the city. Chester Hawkins, another officer in the Palmetto Transportation Company, has been elected treasurer and general manager of the new company.

The railway system, operated by the Columbia Railway Gas & Electric Company, has had hard sledding for many months. At a recent meeting of the City Council, when the removal of certain tracks was under consideration, it was brought out that the railway was losing $8,000 to $10,000 a month. It is understood the railway will welcome the advent of the bus company.

The new company proposes to take over the railway and operate it until the buses are delivered, permanent provisions for their operation perfected and a complete schedule worked out after the required license has been obtained from the South Carolina Highway Commission. The streets of Columbia belong to the State of South Carolina, and the railway system was operating under a franchise granted by the state, the Columbia City Council merely having passed an ordinance confirming the provisions in the franchise as outlined by the State. The city also has police authority over the operation of the railway system. This being the case, the new bus company will have to get its license for operation from the State Highway Commission. The bus company does not propose, at the present at any rate, to remove the car tracks.

The regular fare on the lines will be 10 cents with universal transfers, but it is planned to make a special rate for school children. The present fare on the street cars is 7 cents with a 3-cent charge for transfers from one line to another. Twenty or 25 buses will be purchased for the new system.

Five-Cent Bus Fare in White Plains

The Westchester County bus system filed with the White Plains, N. Y., City Council on Sept. 2, a petition asking an exclusive franchise for operation of buses on five routes within the city limits of White Plains for a 5-cent fare. The petition asked a ten-year franchise, with privilege of renewal for an additional ten years, and promised the city 8 per cent of gross profits.

The Third Avenue Railroad and the New York, New Haven & Hartford Railroad are also seeking exclusive franchises for operation in White Plains, but their formal petitions have not yet been filed. The petition just filed is the first offering bus service for 5 cents, all others having asked higher fares, some 10 cents.

General Dawes Visits Camp in Railroad's Motor Coach

Gen. Charles G. Dawes, vice-president of the United States, was carried from his home in Evanston, Ill., to Camp Grant, Rockford, Ill., a distance of 90 miles, in a Chicago, North Shore & Milwaukee Railroad motor coach on Aug. 25. Gen. Dawes reviewed 9,000 Illinois National Guard troops at the camp.

The parlor motor coach used on the trip was convoyed by a special squad of three Illinois state highway policemen and two Cook County highway policemen who went ahead of the party and cleared the road. Gen Dawes was accompanied by Maj. Gen. George Bell, U. S. A., Retired; Rufus C. Dawes, his brother and a prominent Chicago banker; his son, and several others.

Although the road was cleared of all tourists for the Vice-President's party he would not allow the coach to be operated faster than 35 miles an hour, the state speed limit for Illinois. Gen. John J. Pershing made a similar trip in a North Shore Line coach during the 1924 encampment at Camp Grant.

Many Bus Proposals Before Massachusetts Commission

Because only one of the five members of the Massachusetts Public Utilities Commission was present at the hearing on Sept. 2 the petitions of four bus lines were held for a further hearing. If there is a dispute on any petition, more than one commissioner must be present. Some of the petitions were, however, disposed of at that time as both railroad and bus line representatives agreed to them.

The petition of the Conlin Bus Lines of Worcester for permission to operate between Worcester and Springfield was amended so as to allow them to operate between Worcester and Palmer. Counsel for both parties also agreed to a petition of the same bus line for temporary certificates of convenience and necessity for the operation of buses in Leicester and Rochdale. No objection was raised to the issuance of a certificate to the Plymouth & Brockton Street Railway for the operation of a bus line in Plymouth or to the operation of bus lines between Worcester and Paxton, Wales and Brimfield by the Plymouth & Brockton Company and to the operation of lines between Worcester and Shrewsbury and Worcester and Oxford by Willey & Davis.

The following petitions were held for a further hearing: Conlin Bus Lines

In the Picture Left to Right Are: Fred W. Shappert, Traffic Manager North Shore Line; Lieut.-Gov. Fred Sterling of Illinois; Vice-President Charles G. Dawes; U. S. Senator William B. McKinley, Illinois; B. W. Arnold, Superintendent Coach Service North Shore Line; George Burden, Coach Operator; and the Motorcycle Policemen Who Acted as Convoy for the North Shore Line Coach

for operation between Worcester and Southbridge; Service Bus Line for operation between Everett and Revere and Boston and Revere; the Interstate Motor Bus Company, for operation between Worcester and Springfield and the Interstate Bus Corporation for operation between Springfield and the State Line.

The Worcester Consolidated Street Railway and the Springfield Street Railway were represented at the hearing by Bentley W. Warren; the Eastern Massachusetts Street Railway by Robert B. Stearns, and the Boston & Albany Railroad by George A. Fernald. The bus lines were represented by Frank P. Ryan and Day Baker.

P. R. T. Plans Bus Operation to Washington

The Philadelphia Rapid Transit Company, Philadelphia, Pa., will inaugurate a bus service from Philadelphia to Washington within the next ten days. This announcement was made on Sept. 2.

Starting probably from Broad and Walnut Streets, the buses will be routed through Wilmington and Baltimore. The terminus will be at a Washington hotel. Final details of the schedule, however, have not been decided upon. The same type of car now in use in the Philadelphia to New York bus line will be operated.

Besides the prospective Washington bus route and the recently inaugurated New York service the company has in operation a bus line starting at the Bellevue-Stratford and stretching down over the White Horse pike to Atlantic City, N. J.

Bus Terminal at Rochester Passes to Railway

The New York State Railways, Rochester Lines, has taken over the Rochester Bus Terminal, maintained for a year by independent bus operators at South Avenue and Broad Street in the heart of the city.

With this step the railway and its subsidiaries have a virtual monopoly of the bus field in Rochester. The sole remaining independent line operating out of the city is the Buffalo Road Bus Line, operating to Buffalo and Batavia. The railway is said to have an option on this line.

James J. Dadd, secretary of the Auto Bus Association of N. Y. State, retires as manager of the bus terminal and is succeeded by H. L. Muir, representing the railway interests. The terminal was established by Mr. Dadd, L. N. Caves and other stockholders of the independent lines. One by one the railway companies bought up these lines with the sole exception of the Buffalo Road Line.

The only immediate changes to be made at the bus terminal will be in establishing a general ticket window, a bureau of information and a checking service.

The interurban lines of the New York State Railways now radiate from Rochester in all directions—south to Hornell, Silver Lake and Livonia—east to Holcomb — north along the lakeshore to beach colonies and villages—west to Greece and other suburbs. This network of lines is operated under the name of the Rochester Interurban Bus Company.

New Hampshire Bus Operation Under Way

Bus operation in New Hampshire which have been authorized by the Public Service Commission was started recently by the Boston & Maine Transportation Company with service between Plymouth and Lincoln. A line from Concord to Newport, along Lake Sunapee, is also getting under way, as is the line between Franklin and Bristol which may later be extended to Newfoundland Lake. The first two of these routes have been established primarily as seasonal lines to supplement existing train service. The other line, which parallels the Bristol branch of the Boston & Maine Railroad from Franklin to Bristol and thence extends into new territory, may eventually displace the present unprofitable train operation. This line is in partial substitution for existing passenger train service.

For the Plymouth-Lincoln line and Franklin-Bristol line the Boston & Maine Transportation Company has provided White coaches with accommodations for 29 passengers. On the Concord-Newport route Yellow coaches are used. They have accommodations for 20 passengers.

These routes were referred to in the ELECTRIC RAILWAY JOURNAL, issue of June 13, 1925, page 948.

High-Speed Line Runs Parallel Bus Service

Interstate motor coach service between Chicago and Milwaukee, paralleling its line, was established on Aug. 27 by the Chicago, North Shore & Milwaukee Railroad. Two trips are made each way daily, leaving Chicago at 8 a.m. and 2:30 p.m. and Milwaukee on the same hours. The new routes have proved popular in their infancy. Parlor type coaches are used. Interstate passengers only are being carried on the new line.

Bus May Be a Factor at Columbus, Ohio

The present franchise of the Columbus, Railway, Power & Light Company, Columbus, Ohio, expires in February, 1926. Expansion of the company's transportation service, should there be any, may be established through a bus system, instead of by an extension of the railway. This was intimated by company officials in Columbus on Aug. 28.

Under the Collister-Krueger amendment to the Ohio bus laws, city railways can, instead of making track extensions, formulate a bus system and no private bus concern can enter into the municipal field, run parallel to the railway tracks or upon routes established as extensions under a franchise.

C. C. Slater, general manager of the company, would make no comment on what the company planned in the way of extensions or how these were to be made. He said:

> We do not know when a hearing will be held before the Columbus City Council on the matter of a new franchise and are not prepared to discuss any phase of the new franchise or what will be done when it is granted.

Councilmen have indicated that nothing will be done concerning a hearing on the franchise until after the fall election.

Permission Sought for Passenger Line.—D. P. Abercrombie and Henry I. Moore, receivers of the Salt Lake & Utah Railroad, which operates the "Orem Line" electric railroad, Salt Lake City, Utah, have applied to the Public Utilities Commission of Utah for permission to operate a passenger bus line from Salt Lake City to Magna and the Garfield smelter, in Salt Lake County, subject to the procuring of a franchise from the Salt Lake County Commission.

Bus to Serve Suburban Section.—The New York State Railways, Rochester lines, plans soon to install another bus feeder line. Its subsidiary, the Rochester Railways Co-ordinated Bus Lines, Inc., will operate buses over a 3-mile route, starting at the end of the Emerson Street car line, according to tentative plans made following an inspection by city and railway officials. This route would serve a suburban section on the west rim of the city of Rochester. It is understood Bender buses, of the type in use on several of the railways other lines, would be ordered if the scheme is approved.

Railway Among Grantees.—The Eastern Massachusetts Street Railway was recently granted a license from the Aldermen of Brockton, Mass., to operate buses between Brockton and Taunton and Brockton and Boston. The single fare to Boston is 85 cents and the round-trip fare is $1.50. Two independent companies also received permits to run buses between Brockton and Boston.

Bus Service Considered. — The City Council of Pekin, Ill., is considering the advisability of a bus service as a feeder to the Pekin Municipal Railway. The plan is to lease a bus service for a trial of two months to determine whether it will be more economical and as satisfactory as the desired traction line extensions. The municipality is selling six car tokens for 25 cents.

Service Expanded.—Buses operated in co-ordination with the system of the Springfield Traction Company, Springfield, Mo., have proved their worth. That company, one of the pioneers in the operation of this kind in Missouri, is extending its bus operation to serve points not reached by its electric railway and for this purpose has placed an order with Graham Brothers for three modern buses and also with the Yellow Coach Manufacturing Company for three model X-21 passenger coaches. Four of the buses have been received and are in use and two are expected by Sept. 15. The first buses operated by the company were run after an arrangement had been perfected by the company with the city under which independent jitney competition was eliminated.

Financial and Corporate

Smaller Balance in Detroit

First of New Form of Comparative Statement by Municipal Railway Is Re-published in Full

William M. Hauser, auditor of the Department of Street Railways of the city of Detroit, issued a new form of statistical statement on Aug. 15. It is planned to issue a similar statement at the end of each month. The statement gives not only the operating figures for the month of July, 1925, but for the corresponding month last year. It also includes the income and statistical statement for the 12 months ended July 31, 1925, and for comparison, the corresponding figures for the year ended July 31, 1924.

It is pointed out by Mr. Hauser that figures for any one month are not particularly significant and to avoid the necessity of weighting the figures in making certain comparisons, the statistics should be given for the year ended with the month under consideration.

By comparison it will be seen that the balance for the month of July after deducting total sinking fund charges from net income is $4,893 as against $34,718 for the same month a year ago. For the year ending July 31, 1925, the balance for the period was $511,835 as compared with $838,418 for a similar period ending July 31, 1924. As the city charter provides that transportation by the Street Railway Department shall be furnished at cost, it is cited that it is not the mission of the department to accumulate a large balance.

In reference to the item "Coach Operating Expense per Coach Mile" it should be explained that the figure 21.11 cents as the coach operating expense per coach mile is based upon only such charges as are directly assignable to coach operation and does not include any general expense charges such as the percentage of the salaries of the general manager, auditor or others not exclusively connected with the coach department. It does include such items as salaries of coach operators, gasoline, repairs, etc.

The fact that the total number of railway passengers per car mile was 8.73 in July, 1925, as compared with 9.18 in July last year, is due to the change in density of service. More cars have been put in operation which have more than offset the increase in the number of railway passengers carried, reducing the number per car mile.

The number of coach passengers carried during July, 1925, represents a large increase over a corresponding period for 1924 and the number for the year ending July 31, 1925, exceeds that for the twelve months ended July 31, 1924, as practically all the coach lines installed by the Department of Street Railways have been put into operation within the past year.

INCOME AND STATISTICAL STATEMENT OF THE DEPARTMENT OF STREET RAILWAYS AT DETROIT

Income*	Month of July, 1925	Month of July, 1924	Year Ended July 31, 1925	Year Ended July 31, 1924
Operating Revenue				
201. Railway operating revenue	$1,815,876	$1,669,814	$21,408,824	$22,501,728
202. Coach operating revenue	74,728	10,831	361,651	32,673
Total operating revenue	$1,890,604	$1,680,646	$21,770,476	$22,534,401
Non-operating income	12,143	27,897	197,383	94,385
Total revenue from all sources	$1,902,747	$1,708,544	$21,967,859	$22,628,787
Operating Expenses				
213. Railway operating expenses	1,386,242	1,175,483	15,472,358	16,250,998
214. Coach operating expenses	62,699	6,232	356,622	28,137
Total operating expenses	1,448,942	1,181,716	15,828,981	16,279,136
Net revenue from all sources	$453,805	$526,828	$6,138,878	$6,349,651
Deduct				
215. Taxes assignable to operation	57,638	59,798	714,254	714,490
216-225. Other deductions	450	.....	935	105,578
220. Interest on funded debt,				
On purchase bonds	12,998	13,478	157,750	163,402
On construction bonds	66,745	66,745	785,875	785,874
On addition and betterment bonds and notes	13,535	22,696	103,390	125,861
On purchase contract (D.U.R.)	71,750	76,846	879,400	938,363
Total interest	165,029	179,766	1,926,415	2,013,502
Total deductions	$223,118	$239,564	$2,641,605	$2,833,571
Net income	$230,687	$287,264	$3,497,272	$3,516,079
Disposition of Net Income				
309. Sinking Funds				
For purchase bonds	$11,295	$11,295	$133,000	$133,000
For construction bonds	48,525	48,525	571,351	565,654
For addition and betterment bonds and notes	14,155	40,907	493,567	191,489
For purchase contract (D.U.R.)	151,816	151,816	1,787,518	1,787,518
Total sinking funds	$225,793	$252,545	$2,985,436	$2,677,661
Balance for the period	$4,893	$34,718	$511,835	$838,418

Statistics				
(1) Railway revenue car-miles	4,439,818	3,828,996	48,910,929	49,994,646
(2) Coach revenue coach-miles	297,009	23,314	1,487,278	102,986
(3) Railway revenue car-hours	476,071	415,294	5,312,798	5,574,025
(4) Coach revenue coach-hours	32,253	2,623	159,662	6,872
(5) Railway revenue passengers	28,842,519	26,184,539	340,813,210	362,250,926
(6) Railway transfer passengers	9,942,846	8,974,936	116,849,491	113,703,913
(7) Railway total passengers	38,785,365	35,159,475	457,662,701	475,954,839
(8) Coach revenue passengers	1,034,846	221,244	4,962,438	619,322
(9) Coach transfer passengers	29,450	.....	.....	.....
(10) Coach total passengers	1,064,296	221,244	4,962,438	619,322
(11) Total revenue and transfer passengers	39,849,661	35,380,719	462,624,589	476,574,161
(12) Railway operating revenue per car-mile	40.89 cents	43.61 cents	43.77 cents	45.00 cents
(13) Coach operating revenue per coach-mile	25.16 cents	46.46 cents	24.32 cents	31.73 cents
(14) Railway operating expenses per car-mile	31.22 cents	30.70 cents	31.63 cents	32.51 cents
(15) Coach operating expenses per coach-mile	21.11 cents	26.73 cents	23.98 cents	27.32 cents
(16) Railway operating revenue per car-hour	$3.81	$4.02	$4.03	$4.04
(17) Coach operating revenue per coach-hour	2.32	4.13	2.31	4.75
(18) Railway operating expenses per car-hour	2.91	2.83	3.43	2.91
(19) Coach operating expenses per coach-hour	1.94	2.38	2.23	4.09
(20) Ratio of transfer passengers to revenue passengers—railway, per cent	26.84	34.28	33.63	31.39
(21) Ratio of transfer passengers to revenue passengers—coach, per cent	2.84	.....	.....	.....
(22) Railway revenue passengers per car-mile operated	6.50	6.84	6.97	7.25
(23) Railway transfer passengers per car-mile operated	2.23	2.34	2.39	2.27
(24) Total railway passengers per car-mile operated	8.73	9.18	9.36	9.52
(25) Coach revenue passengers per coach-mile operated	3.48	9.49	3.34	6.01
(26) Coach transfer passengers per coach-mile operated	0.10	.....	.....	.....
(27) Total coach passengers per coach-mile operated	3.58	9.49	3.34	6.01
(28) Ratio of railway operating expenses to railway operating revenue, per cent	76.34	70.40	72.27	72.22
(29) Ratio of coach operating expenses to coach operating revenue, per cent	83.90	57.54	98.61	86.12

*Cents have been disregarded.

Financial Embarrassment in Keene

Steady decrease in revenue due to the constantly increasing competition of privately owned automobiles has brought the Keene Electric Railway, Keene, N. H., to a point where it must either discontinue service and liquidate the company or instal buses in place of the present car equipment. The bondholders of the road have received notice of the situation and the outline of a new plan of salvation.

The plan advocated by a special committee composed of Wallace L. Mason, Keene; T. Russell Robinson and Charles G. Bancroft, Boston, would have all bondholders deposit their bonds with a committee while it sought aid in establishing credit to buy buses. The committee says that if this is done it will enable the continuance of bond interest payment.

Until recently the company has been able to operate in a manner permitting the payment of bond interest. Decrease in traffic began to be felt last March. Continuation of this condition, the committee says, might result in a deficit even before the payment of bond interest. Owners of the bonds will become parties to the agreement by making a deposit of their bonds, and the agreement will take effect as soon as an aggregate amount which is considered satisfactory by the committee has been deposited.

The Keene Electric Railway operates 10 miles of railway line.

Danbury Property to Be Restored

Plans are under way for the rehabilitation of the Danbury & Bethel Street Railway, Danbury, Conn. Judge J. Moss Ives, receiver of the bankrupt road, stated recently that an amicable settlement had been reached on all claims against the railway. The disputed claims against the road concerned notes, given to advance interest on the first mortgage bonds, the priority of the bonds being in dispute. The face amount of the bonds involved was $80,000. It is said the matter was satisfactorily adjusted, but the terms were not made public.

The Danbury & Bethel Street Railway serves Danbury and Bethel with both trolley and bus transportation. The company owns 3 miles of track in Bridgeport, 2 miles of which is leased by the Connecticut Company. The tracks were ordered removed by the city, as the abandoned mile was found to be a menace to the city. The petition is to be filed at once.

Toledo Reports July Deficit

A deficit of $29,693 resulted from July operations of the Community Traction Company Toledo, Ohio. Gross revenue was $270,678, compared with $276,549 in July last year. Operating charges were $207,303, as against $240,551 a year ago. Economies from operation of one-man cars are largely responsible for the big cut in operating charges. During the month 3,590,487 revenue passengers were carried. This is an average of 120,497 a day, the lowest point reached with the exception of last September.

Sinking fund trustees have retired $133,000 of the 6 per cent Community Traction Company bonds, bringing the total of retired bonds to $934,000. This amount of common stock has been issued in the name of the city of Toledo. There remains also $74,695 cash reserve in this fund. This indicates that the extent of the city's ownership in the property exceeds $1,000,000. Offsetting this is the deficit of $576,633 accrued since the Milner ordinance became effective.

$5,000,000 of Expenditures to Be Capitalized at Columbus

Approval of the Ohio Public Utilities Commission was granted on Aug. 28 to the request of the Columbus Railway, Power & Light Company for an issue of $5,000,000 of 6 per cent preferred stock as a reimbursement of $7,236,365 uncapitalized expenditures, of which $6,145,799 was contracted between March 1, 1924, and July 31, 1925. A statement accompanying the request for approval of the preferred stock issue gives the amount of stock now approved as first preferred at $2,128,651; series B, $5,028,745, and common stock, 150,824 shares.

The Utilities Commission on Feb. 11 authorized the company to issue 30,000 shares of common capital stock, no par, at not less than $50 a share, leaving a balance of $1,090,565 up to that date not authorized to be capitalized, which is carried over, making the total uncapitalized at $7,236,365.

In the statement of expenditures covering the period of March 1, 1924, to July 21, 1925, it is pointed out that $216,988 has been expended for land used in electrical operation; $1,919,376 for power equipment, and $1,873,920 for transmission, storage and distribution of equipment.

Figures of the statement cover expenditures contracted in the erection and equipment of a new power plant in Columbus and the equipment and other items in the new Walnut power station, now in operation 8 miles southeast of Columbus, Ohio. C. C. Slater, general manager of the company, declared that the new plant at Piqua, Ohio, and the acquisition of other power companies south of Columbus to be operated as subsidiaries of the Columbus, Railway, Power & Light Company, do not enter into this financing scheme.

Court Has Kansas City Valuation

Summary Presented of Full Report on Valuation Placed on File by Professor Riggs with Judge Stone—Much Interesting Comment Aside from Figures

PRESENT worth of the properties of the Kansas City Railways, Kansas City, Mo., is found by H. E. Riggs, dean of the school of engineering at the University of Michigan, to be between $19,000,000 and $23,500,000, after deducting for depreciation. Historical cost of the properties is fixed by Professor Riggs at $32,000,000. The report was formally submitted to Judge Kimbrough Stone, United States Circuit for the Eighth Judicial Circuit, on the morning of Aug. 29.

Professor Riggs was appointed by Judge Stone in November, 1924, to make the appraisal of the properties for the court in order to simplify the work of reorganization of the railway.

The report was submitted in book form. It was divided into two sections, designated as the general report and the accounting report, respectively. In Professor Riggs' letter of transmittal, which preceded the text of the report, he set out some of the reasons for taking certain courses in determining the actual value of the properties and enumerated the several bases by which the various valuations had been arrived at. Mr. Riggs said:

> The entire work has been handled on the theory that the determination of true value or fair value is a judicial function, to be exercised by the court, or by any legally constituted commission which may be called upon to pass upon the question at issue.

Neither the receivers for the railways nor Fred G. Buffe, general manager for the receivers, made any statement in connection with the report. There appear to exist good reasons for disappointment at the contents of the report. The principal one seems to be in the fact that the estimated actual value of the existing properties has fallen, according to the report, to a little more than $18,944,000, despite the statement made by Mr. Riggs to the effect that he is convinced that the existing properties could not now be replaced for less than $51,000,000 and that the property in actual use, if replaced new, would cost at least $48,000,000.

Although Mr. Riggs admits a value of not less than $37,000,000 at Dec. 31, 1924, assuming reproduction with the proper deductions for depreciation to be the correct basis for value, he states that in this case he is convinced that reproduction, or reproduction less depreciation, is not the correct measure of true value of the properties.

As indicated previously the historical cost of properties now existing is estimated at $32,000,000, and the present worth, after deducting for depreciation, is about $23,500,000. Depreciated on a more liberal basis, an estimated present value of approximately $19,000,000 is found.

In commenting on the earnings of the company throughout its existence from 1886 to date. Mr. Riggs points out that the total return in percentage of the money invested has never been excessive and that the best year in the history of the company, 1907, produced a return of only 6.59 per cent, which has gradually decreased until, during the past five years, it has been only a fraction of 1 per cent.

The report goes on to say that the study of the business of the railway does not develop optimism. It fixes the net earnings of the company for the years 1921-24 at an average of $837,829 a year, explaining that this figure is a very liberal one in view of the decrease in 1924 from 1923, and the continued decrease in the first six months of 1925 over the same period in 1924.

It is estimated that through various economies the effective net income after depreciation can be brought up to $1,450,000 a year, providing the rehabilitation process is accomplished. On the basis of this revised income, assuming the life of the property as permanent and the rate of interest to be 6 per cent, the commercial value of the present fixed property is $15,160,000 not including $1,300,000 for working capital and $7,350,000 for rehabilitation.

The drop in per capita rides in the last ten years is attributed to increased automobile registration in Kansas City and tributary territory. In 1914 each person in the city was credited with 325 rides. At that time only 8,593 automobiles were registered. In 1924, the "riding habit" per capita had dropped to 248. There were then 89,186 registered motor cars, accounting for a loss, according to Mr. Riggs, of 191,908,000 revenue passengers for the ten-year period.

No attempt was made by the appraiser to show any intangible or going concern value. In this connection, Mr. Riggs said:

> I think that to show intangible values in excess of plant value, there must have been a continuity of successful operation, permanence of earnings, safety of investment, freedom from competition, and an earning power which gives returns well in excess of the minimum fair returns. There are none of these elements present in this case.

A rehabilitation requirement of

$7,350,000 must be provided as capital, according to the appraiser.

In the estimate of rehabilitation of the property used in transportation service, recapitulation is provided for way and structures to the total of $3,699,693; for equipment, $2,129,368, and for power, $1,523,863, bringing the total recapitulation to $7,352,924. Whether or not this estimate may become a deterring factor in the eventual reorganization of the company is still a matter for conjecture.

The report covers the financial and corporate history of the Kansas City Railways and its predecessors. Conclusions as to fair returns which should be expected from the future operation of the company's cars and buses are also included in the text.

The report covers 142 printed pages. It includes a large number of charts and tables. The work is now in the hands of Judge Stone for his consideration and subsequent action. It is not known when Judge Stone will enter his comment on the appraisal and estimated valuation.

More Preferred Stock for Philadelphia Riders

The Philadelphia Rapid Transit Company, Philadelphia, Pa., intends to issue additional preferred stock to finance the extension of its lines for service in the sesqui-centennial area and subsequent development of South Philadelphia home building as planned by the city. John McI. Shaw, editor of *Service Talks*, the P. R. T. publication, during testimony before the Public Service Commission disclosed this information. The size of the contemplated issue, it was indicated, had not been decided. The P. R. T. last spring offered $3,000,000 of 7 per cent preferred stock to car riders. That issue was quickly oversubscribed.

Customer Ownership Campaign in Fort Wayne

The Indiana Service Corporation, one of the subsidiaries of the Midland Utilities Company, has joined the customer-ownership movement by offering its 7 per cent preferred stock to customers and other investors.

The Indiana Service Corporation supplies electric light and power and street railway service in Fort Wayne, Ind., and operates three electric railroad lines radiating from that city. It also supplies electric light and power service to twenty-two smaller communities in Indiana and operates local street railway systems in Wabash, Peru and Logansport, as well as in the city of Fort Wayne.

Railway Service Abandoned in Concord, N. C.

Railway service in Concord, N. C., a town of 9,900 population, was abandoned recently by the North Carolina Public Service Company. Suspension of service did not come as a surprise as Aldermen of the city at a recent meeting had been advised by a representative of the company that the line was being operated at a loss of about $7 a day and that the company would be forced to eliminate this loss. Mayor Barrier appointed a committee to look into the value of the plant and to ascertain whether the city could operate the line.

The railway system in Concord has never been a paying proposition according to reports made to city officials by the North Carolina Public Service Company. It is said the equipment is not in repair, requests for new equipment having been refused due to the fact that the company contemplated suspension of the line. In addition the company owes the city of Concord about $33,000 for street paving and interest.

Small Decrease in Pay Passengers in July

Electric railway traffic declined slightly again during the month of July from the traffic of the same month in 1924, according to figures compiled by the Association for the United States Department of Commerce. The number of revenue passengers, including bus passengers, reported by 202 companies for these months was as follows:

	MONTH OF JULY		
	1925	1924	Per Cent Decrease
Revenue passengers	737,673,325	740,264,161	0.35

Slight Gain in City Traffic. — A distinct falling off in patronage of the suburban lines of the Worcester Consolidated Street Railway in the district which is supervised from the Worcester, Mass., headquarters, although business on the city line is on the increase was recently confirmed by Clark V. Wood, president of the company. According to Mr. Wood, the passenger division receipts or the six months ended July 1 were $1,864,074 or the carrying of 3,400,000 fare-paying passengers. There was a slight decrease in the mileage of track over which cars operated during the six months, but not enough to account for the decrease in revenue shown in comparison with the preceding six months.

Short Suburban Line Abandoned.— The Worcester Consolidated Street Railway has abandoned operations between Worcester and Auburn, Mass., a distance of 6 miles. Henry C. Page, general manager states that the public has shown a preference for the bus lines operated between these two points.

Arguments Concluded. — William H. Maltbie, counsel for the United Railways & Electric Company, Baltimore, on Aug. 28 submitted his argument in the valuation case being conducted by the Maryland Public Service Commission to fix the valuation of the United's property. Following the granting of permission by the commission when the hearings were closed, Mr. Maltbie made his argument in written form. This action brings the actual submission of testimony and arguments to an end and the subject will be considered by the members of the commission. It is expected that a decision will be rendered this fall.

Section of Line to Be Discontinued.— Municipal authorities of Northampton and Hatfield, Mass., have virtually decided to approve the plan of L. D. Pellissier, president of the Northampton Street Railway, to discontinue the section of railway between Ferry Street, Hatfield, and Bradstreet in the northern part of the town. This property was taken over from the old Connecticut Valley system. It is operated by Mr. Pellissier for the two municipalities under the transportation area plan. The portion between Northampton and Ferry Street is said to be self-supporting.

Shuttle Service Is Abandoned. — The Savannah Electric & Power Company, Savannah, Ga., has filed a petition with the City Council asking permission to abandon its Indian Street line. This is a shuttle car service that connects the main lines of the street railway company with the docks of the New York and Baltimore steamer lines. The Council proposes to pave Indian Street, and although the company says it is willing to pay its pro rata share of the cost of this pavement it does not want to go to the expense of relaying its rails to meet the new conditions brought about by the repaving.

Plans to Discontinue Part of Line.— The Springfield Street Railway, Springfield, Mass., purposes to discontinue that portion of its Glenwood line to Chicopee which lies north of the boundary line between the two cities. Hamburg Street will be made the terminal, instead of Exchange Street, Chicopee. Service through Springfield Street from Hamburg Street would be given through an extension of the company's Armory Street bus route. The public Service Commission has approved the company's petition, and action soon will be taken by the Chicopee City Council.

Earnings Affected by Strike.—The Des Moines City Railway, Des Moines, Iowa, reported a gross operating loss for July of $10.218 which with fixed charges of $37,652 brought the debit to $47,871. F. C. Chambers, president of the railway, says that figure now represents the total deficit of the stabilizing fund and is 15,000 lower than the maximum estimates. The debit is the largest in the history of the company. It is attributed in a great measure to the recent strike by employees of the railway. This is the second time the stabilizing fund has been obliterated.

Bus Substitution Disapproved.—Approval of a contract between the Philadelphia Rapid Transit Company and city of Philadelphia, Pa., for the removal of trolley tracks and wires on Race Street, between Second and Eighteenth Streets and between Twentieth and 22d Streets, was refused recently by the Public Service Commission. The object of the contract was to repave Race Street and run buses on it.

To Offer Tampa Electric Stock.—A special meeting of stockholders of the Tampa Electric Company, Tampa, Fla., has been called for Sept. 30, to vote on an increase in capital stock from $5,968,600 to $6,210,700, to be offered shareholders at par in the ratio of one new share for every four now held. Proceeds are to be used for the construction program to keep pace with the growth of business in the territory served.

Legal Notes

ALABAMA—*Legislature May Authorize Assessment of Street Railway for Paving on Streets and It May Create a Lien Therefor.*

The legislative power of the state may require a street railway to pave or meet the cost of paving its track laid on the grade of public streets, may authorize the assessment of the cost thereof to the street railway and may declare a lien on its property for the security of this payment. Such an assessment is in the form of a tax, and is constitutional if it applies to all alike who enjoy the franchise for operating a street railway. [Alabama Traction Co. vs. Selma Trust & Savings Bank, 104 Southern Rep., 517.]

FEDERAL CIRCUIT COURT.—*Contract by City to Pay Taxes on Railway Property Purchase Held Valid.*

Where a city, as part consideration for a railway property purchase, contracted to pay a specified portion of the taxes assessed against it prior to its conveyance for the then current year of 1919, this contract was held to create a valid and enforceable obligation. [Puget Sound Power & Light Co. vs. City of Seattle et al, 5 Federal (2d) Rep., 393.]

FEDERAL DISTRICT COURT—*Commission Rulings on Depreciation Not Retroactive. Confiscatory Rate.*

A Board of Public Utility Commissioners, which for more than ten years failed to correct excessive depreciation charges by fixing reasonable rates therefor, does not have authority to hold that these charges for depreciation being excessive future depreciation rates must be less than those which the board itself finds to be normal. A return of only 4.33 per cent on telephone property is confiscatory. [N. Y. Tel. Co. vs. Board of Public Util. Com. of New Jersey, 5 Federal (2d) Rep., 245.]

INDIANA—*Robbery of Passengers by Highway Men.*

An interurban car was stopped by highway men and several of the passengers were assaulted and robbed. One of them brought suit against the company on the ground that the railway employees "wilfully and unlawfully refused and failed to interpose" and give the passengers the protection to which they were entitled. The court declared that the complaint was defective because it did not charge negligence, and the only theory on which there could be a recovery was the want of ordinary care on the part of the company to protect the passengers. This defect in the complaint, however, was not prejudicial, where the cause was fairly tried, and the court refused to disturb a verdict for the passenger. [Terre Haute, Indianapolis & Eastern Traction Co. vs. Scott, 148 Northeast Rep., 335.]

KENTUCKY—*Care Required of Automobile Guest*

While the negligence of the driver of an automobile is not to be imputed to guests therein, they are not released from exercising ordinary care for their own safety when the automobile in which they are riding approaches and attempts to cross car tracks, and it is the duty of each guest to notify the driver of the automobile of the approach of a trolley car, if he knows of such approach, or could have known of it by the exercise of ordinary care. [Rice's Administrators vs. Kentucky T. & T. Co. et al, 273 Southwest Rep., 78.]

KENTUCKY—*Liability for Assault on White Passenger in Colored Car.*

Under a state law, railway companies are required to provide either separate compartments or separate coaches for white and colored passengers. On a crowded train of two cars, a white passenger occupied the car intended for colored passengers and was assaulted while there by a colored man. The evidence was conflicting as to whether the conductor knew there were any white passengers on the colored car and whether the cars were properly marked. The court declared that if the conductor knew, or had such opportunity for knowledge as would have advised a reasonably prudent person, that a white passenger was in the car set apart for colored pasengers, it was his duty to require him to pass into the white coach or to make a reasonable effort to that end, and if he failed to do so, the company was liable if the passenger was assaulted. [Louisville & I. R. Co. vs. Garr, 273 Southwest Rep., 540.]

MARYLAND.—*Railway which Accepts Intoxicated Person as a Passenger Must Exercise Reasonable Care to Protect Him.*

A drunken passenger who had paid his fare and was inoffensive and in a state of stupefaction was ejected at an unlighted waiting station other than his destination and later was injured by another car of the same company. It was held that the evidence of negligence was sufficient to warrant submitting the case to the jury. [Veenstra vs. United Railways & Electric Co., 129 Atlantic Rep., 679.]

MISSOURI—*Violation of Ordinance Relating to Stopping of Cars for Passengers Held Not Negligent as to Occupants of Automobile*

A city ordinance in St. Louis requires street cars to stop at certain designated points to receive passengers when any person is waiting at such point to board a car and signals for it to stop. The driver of an automobile, seeing some intending passengers so waiting and signalling at a street corner, assumed that an approaching trolley car would stop and crossed directly in front of it with his automobile. A collision ensued. The court held that the ordinance in question imposed no duty on the company with respect to persons not waiting to board a street car and that the failure of the car to stop was not actionable negligence in the case of the automobile. [Anderson vs. Wells, 123 Southwest Rep., 233.]

NEW JERSEY—*Obligation to Keep Pavement in "Repair" Does Not Require Company to Pay a Proportionate Cost of New Pavement.*

The franchise of a railway company obligated it to keep a certain proportion of the pavement on which its tracks ran in good repair. This was held not to oblige it to pay a proportionate cost of removing the paving and repaving the street with new granite block pavement. A distinction was drawn between repaving, the cost of which may be imposed in part upon abutting owners, and the repair of an existing pavement which is payable out of the municipal treasury. [Jersey City vs. Public Service Railway, 129 Atlantic Rep., 482.]

NEW YORK—*Where Car Left Track Burden of Proof of Railway Negligence Is on Plaintiff.*

During a collision between an automobile and a trolley car or just prior thereto, the trolley car left the track, though it was uncertain whether its derailment was caused by an explosion or by being struck by the automobile. Even if caused by an explosion, the New York Supreme Court held that the railway company would not be liable unless the plaintiff proved that due care was not used in discovering the explosive. Negligence of the motorman cannot be presumed from the collision. Evidence that the driver and passenger of the automobile had been drinking, even though they were not actually intoxicated, was held to have a bearing on the question of their negligence. [Szpyrka vs. International Railway Co. et al, 210 N. Y. Sup., 553.]

RHODE ISLAND *State Commission Regulation Applicable in Part to Interstate Bus Service.*

In view of recent federal Supreme Court decisions, certain provisions of the state law regulating interstate motor vehicles are void, but some are not. A state public service commission cannot require an interstate bus carrier to secure a certificate of public convenience and necessity or require the operator to be a resident of the state, but it may specify the routes over which such buses may operate, and the number of passengers which such a bus may carry at any time and it may apply other regulations which are reasonably exercised for public safety and order and the conservation of the highways. [Newport Electric Corporation vs. Oakley. 129 Atlantic Rep., 613.]

VIRGINIA—*Commission has Power to Relieve Company from Paving.*

In a charter for a street railway granted by the State of Virginia in 1866, the company was required to do a certain amount of paving in the streets occupied by its tracks. The Supreme Court of Appeals of Virginia held that the State Corporation Commission had power to relieve the company from this requirement, in spite of the protest of the city. [Ex Parte Norfolk R. & L. Co., 128 Southeast Rep., 602.]

Personal Items

Mr. Dunbar With Detroit United

Will Represent on that Property Financiers Identified with Philadelphia Rapid Transit

Willis C. Dunbar, president of the Philadelphia Rapid Transit Company, Philadelphia, Pa., has been named a receiver of the Detroit United Railway, Detroit, Mich., as mentioned briefly in the ELECTRIC RAILWAY JOURNAL for Aug. 29. It is explained now that Mitten Management, Inc., agreed to the appointment at the request of Dillon, Read & Company, New York, bankers for the Philadelphia Rapid Transit Company, who have also been identified in the past with financing done by the Detroit United Railway, the Twin City Rapid Transit Company and other traction properties.

ONLY PART TIME IN DETROIT

The arrangement provides for reimbursement to P. R. T., for the time devoted to the affairs of the Detroit United Railway by Mr. Dunbar, who continues as president and in active direction of P. R. T. finances, delegating for this period his other responsibilities to W. K. Myers, vice-president. Mitten Management at present operates not only the P. R. T. system, but also the International Railway, Buffalo.

Mr. Dunbar has been associated with Mitten activities since 1908, when he became comptroller of the International Railway, Buffalo, N. Y., of which company T. E. Mitten was then chairman of the executive committee. Mr. Dunbar went to Philadelphia at the incoming of Mitten Management in 1911, in charge of P. R. T. accounting department, later becoming comptroller. In 1919 he was elected vice-president of the company in charge of finance and accounting.

It is understood that it was largely through the efforts of Mr. Dunbar that Dillon, Read & Company were induced to assume the responsibility of financial representative of the P. R. T., following the withdrawal of Drexel & Company as fiscal representatives of the railway and of the interests identified with them from the board of directors.

WELL VERSED IN FINANCING

Mr. Dunbar was born in Michigan in 1881. He attended public school and high school in Bloomfield, N. J. His first job was in the auditor's office of the New York Central Railroad. This he left in 1901 to become assistant auditor of a coal company. He received the degree of C. P. A., in New York State in 1904 and for the next three or four years was engaged with Marwick, Mitchell & Company, chartered accountants. the last year of which he was in charge of the Kansas City office, a position which he left to assume the position of comptroller under Mr. Mitten at Buffalo.

G. W. Van Derzee

New Vice-Presidents at Milwaukee

G. W. Van Derzee, who has been handling the work of assistant vice-president of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., since 1913, has also been made a vice-president in recognition of his meritorious work in the company's electric service department. In his old post, in which he served since 1918, he was in charge of the development of the company's electric properties.

After he was graduated from the public schools of Milwaukee Mr. Van Derzee entered the electrical engineering department of the University of Wisconsin and then taught for two years at the Michigan School of Mines. From Michigan he joined the forces of the General Electric Company in its Schenectady works and later worked in the sales department of the company for several years.

John Anderson has been promoted to the post of vice-president of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., in charge of power. Since 1912 he has been chief engineer of power plants.

John Anderson

Mr. Anderson was largely responsible for the erection and successful operation of the Lakeside powered fuel plant. For the past four years this plant is said to have led the large central stations in the amount of power produced from a pound of coal.

The preparatory education of Mr. Anderson was received in Scotland and England. He began his engineering career in the engine rooms of the North Atlantic's liners plying between America and Europe. In 1904 he was made chief engineer of the largest ship operated by this line. Seeking a change of environment he accepted the post of assistant chief engineer of power plants offered him by the Union Electric Light & Power Company, St. Louis. He continued with that company until 1912, when he went to Milwaukee as chief engineer of power plants.

C. S. Carstens, safety director of the Wheeling Traction system, Wheeling, W. Va., has tendered his resignation, effective Aug. 31. It is understood he intends to accept a position with a large Eastern insurance firm. He succeeded Martin Cowen. Mr. Carstens went to Wheeling on Jan. 1 of this year from New York, where he had been safety director in a big safety campaign. According to C. S. Wills, general manager, the safety work of the Wheeling system will be carried on by some of the other officials until a successor has been appointed.

William P. Pearre, former assistant publicity manager of the Chicago Rapid Transit Company and the Chicago, North Shore & Milwaukee Railroad, left those companies on Sept. 1 to take a position in the publicity department of the Midland Utilities Company, Chicago, which also is a so-called Insull property. Mr. Pearre has spent three years in the employ of the two Chicago companies. He was on the news staff of the Chicago *Herald and Examiner* for the two years immediately previous to becoming connected with the railroads, and for two years previous to that time was with the City News Bureau of Chicago. He attended the University of Illinois.

Jacob I. Beals, division superintendent of the Monongahela-West Penn Public Service Company, Clarksburg, W. Va., recently resigned. He served with the company for about eight years.

Bryant White has been made superintendent of light and power of the Wilmington & Philadelphia Traction Company, Wilmington, Del. For the past five years Mr. White has been general superintendent of light and power of the Lynchburg Traction & Light Company, Lynchburg, Va., which is also operated by the American Electric Power Company, Philadelphia. A graduate of Harvard, 1905, Mr. White entered the employ of the Western Electric Company, Chicago, then in 1910 he joined the forces of Byllesby & Company in St. Paul and central Indiana. Following this he was with the Public Service Corporation of New Jersey in Elizabeth, N. J., and in wartime was electrical engineer with the

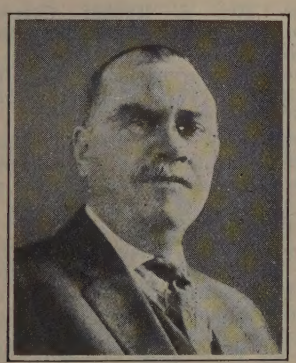
Fred T. Ley Company, designer and builder of the Perryville, Md., plant for the government. From there he went to Lynchburg. Mr. White was born in Louisville, Ky., in 1882.

Obituary

W. E. Dunn

William Ellsworth Dunn, vice-president of the Los Angeles Railway Corporation, Los Angeles, Cal., died on the morning of Aug. 22. He was at his office the previous day and was apparently in good health. The body was cremated at Hollywood Cemetery with strictly private rites.

Mr. Dunn was city attorney of Los Angeles for several terms, but left this office in 1899 to join Albert Crutcher in the law business. In the same year he was retained as counsel by Henry E. Huntington, president of the Los Angeles Railway. Later he helped to form the law firm of Gibson, Dunn & Crutcher. In 1910 Mr. Dunn ceased active participation in the law firm to become vice-president of the various corporations of which Mr. Huntington was head.



W. E. Dunn

Mr. Dunn was chairman of the board of trustees of the Henry E. Huntington Library and Art Gallery. This was a life appointment. He was vice-president of the Los Angeles Railway Corporation, and was on the board of directors of the Southern California Edison Company, the First National Bank of Los Angeles, and the Rodeo Land & Water Company. He was also past president of the California Electric Railway Association, president of the California Club, and a member of the Los Angeles Bar Association and the American Bar Association.

Mr. Dunn was born on Aug. 2, 1861, in Fennville, Mich. He attended the Law School of the University of Michigan at Ann Arbor. He moved to California in 1885.

John H. Ohlsson, assistant general manager of sales of the J. G. Brill Company, Philadelphia, Pa., died suddenly of acute indigestion on Sept. 3. Mr. Ohlsson had been connected with the Brill Company since 1894, when he entered its employ as an office boy. His acquaintance among railway men was extremely wide. He was born in 1880.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

36,919,332 Pounds of Babbitt Metal Consumed in Seven Months

Total apparent consumption of babbitt metal, based on reports received from 27 firms, was 5,184,196 lb. in July, compared with 5,034,965 in June. This consumption is calculated from sales by manufacturers and consumption by those firms (among them several important railroad systems) which consume their own production. In the accompanying table which is presented by the Department of Commerce, the sales of babbitt metal are shown separately from the consumption in the producing plants:

BABBITT METAL CONSUMPTION
(As shown by sales and consumption by producers in pounds)

1925	Total Apparent Consumption	Sales (By Manufacturers)	Consumption (By Producers)
January	5,683,182	4,620,814	1,062,368
February	5,164,619	4,103,340	1,061,279
March	5,644,288	4,395,901	1,248,387
April	5,126,415	3,928,135	1,198,280
May	5,081,667	4,189,557	892,110
June	5,034,965	4,085,124	949,841
July	5,184,196	3,694,486	1,489,810
Total (7 mos.)	36,919,332	29,017,257	7,902,075

American Car & Foundry Gets Hall-Scott Motor

Purchase of the Hall-Scott Motor Company, Oakland, Cal., by the American Car & Foundry Company has been consummated. Confirmation of this fact has been made by the New York office of the Car & Foundry Company. It has been persistently rumored that J. G. Brill interests have shared in this deal, but no positive confirmation of this report could be obtained.

The report that Car & Foundry and Brill interests had offered to purchase Fageol Motors Company, Oakland, and The Fageol Company, Kent, Ohio, a subsidiary of the California Company, was denied by New York officials of the Car & Foundry Company in so far as their participation in such a deal was concerned. This report stated that the purchase was on the basis of the present appraised value plus current assets and $500,000 for good will.

There is only a contractual relationship between the Hall-Scott and Fageol Company relative to the exclusive use of the Hall-Scott engine by the Fageol companies for motor bus work.

Metal, Coal and Material Prices

Metals—New York	Sept. 2, 1925
Copper, electrolytic, cents per lb	14.625
Copper wire base, cents per lb	17.00
Lead, cents per lb	9.50
Zinc, cents per lb	7.925
Tin, Straits, cents per lb	56.625
Bituminous Coal f.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	$4.925
Somerset mine run, Boston, net tons	1.875
Pittsburgh mine run, Pittsburgh, net tons	1.95
Franklin, Ill., screenings, Chicago, net tons	1.95
Central, Ill., screenings, Chicago, net tons	1.55
Kansas screenings, Kansas City, net tons	2.50
Materials	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft	$6.90
Weatherproof wire base, N.Y., cents per lb.	18.50
Cement, Chicago net prices, without bags	2.20
Linseed oil (5-bbl. lots), N.Y., per gal	$1.07
White lead in oil (100-lb. keg), N.Y., cents per lb	0.1575
Turpentine (bbl. lots), N. Y., per gal	$1.09

Anthracite Miners Force Reliance Upon Substitutes

The anthracite agreement came to an end this year in an entirely different setting than did that of 1902, when President Roosevelt intervened. Then there frequently was real misery among the mine workers. Their standard of living was below that in many other industries. Then there was a great body of consumers to whom substitutes were unfamiliar and to a considerable extent unobtainable.

As the agreement came to an end this year the mine workers were enjoying a standard of living which exceeds that of many other American industries and is so far ahead of that of any group in Europe as to be incomparable. There is no poverty or genuine grievance among them. They are prosperous and are saving money. The mine workers have forced up the wage rate until their product has become a luxury. Incidentally they opened the way for the entry of oil, coke and high-grade soft coal into what could have been kept an exclusive market.

A situation has been brought about where adjustments could be made quickly were anthracite to disappear from the earth. The second winter it hardly would be missed. Instead of finding desperate consumers pleading with federal officials for protection as was the case in 1902, the expiration of this year's agreement found the consumers bending their efforts to free themselves of dependence on a single fuel. They did not want the federal government to interfere. The strike would have to last twelve months, it is believed, before any great pressure would be developed for federal intervention. When a former fuel administrator of New England—a man noted for the vigorous way in which he has championed the cause of the consumer—comes out and urges the use of substitutes, it would seem that the public will take the matter more seriously than ever before.

The mine workers also faced a different situation than ever before as the agreement expired. They had to decide between holding the high wage scale they had attained and embarking on a desperate adventure involving the possible destruction of their union and the loss of half their market. Loss of half the market would mean the reduc-

tion of the working forces by 75,000 men. It would mean lowering of price to win back what had been lost.

Observers in Washington are sitting back wondering what John L. Lewis will do next. It is his move and it is being awaited with keen attention. Whether or not Mr. Lewis will attempt to make good his veiled threat to call out his bituminous men naturally is the feature of the situation on which greatest interest is focused.

Garage Projects Are Increasing in Number

Projects for the erection of garages and bus terminals by electric railways are fast increasing in number. So much is this so that a cursory examination of recent projects to which reference has been made in the ELECTRIC RAILWAY JOURNAL shows that among the electric railways using buses that have in mind more or less elaborate bus garage plans are the Boston Elevated Railway, Connecticut Company, Milwaukee Electric Railway & Light Company, Public Service Transportation Company, Toronto Transportation Commission and the A'toona & Logan Valley Electric Railway. It is true that some of these projects are in the nature of rebuilding operations, but others of them contemplate the erection of new buildings running up to an expenditure in one instance estimated at upward of $150,000 for the building alone without any shop equipment. Moreover, this list does not pretend to exhaust the list of new projects.

As for the industry itself, its appreciation of the problems that the proper housing of buses involves is attested by the fact that a special committee will report on the subject at Atlantic City in October. Construction engineers, too, are fast coming to appreciate the extend and possibilities of business of this kind in the future. For example, the Austin Company, Cleveland, is figuring on more than 50 projects of the kind at this time. An expression of the ideas of this company has recently been published in a folder, "Facts About the Design and Construction of Motor Bus Terminals." As the officers of this company see it, there are ten questions which shou'd be satisfactorily answered before a dollar is spent on a bus terminal, using that word in the sense of a combined garage and administration building. Here are the questions:

1. Is location right with reference to growth of city, traffic, sources of revenue, facilities, accessibility for employees, dead-mileage?
2. Is the site satisfactory? Does proximity to main thorofares accomplish its two-fold purpose?
3. How many buses must be provided for at present?
4. Can expansion be easily accomplished later?
5. What types of buses are to be operated? What additional types may be placed in service within the next two years?
6. Does present or anticipated business warrant separate buildings for garage and body shop?
7. What bearing will facilities of projected terminal have on additional subterminals, and is its location satisfactory, in view of distance from these poss'ble subterminals?
8. How will location of terminal affect operation in connection with passenger station?
9. Is the transportation of freight contemplated?
10. Are your tentative ideas on layout and general design of buildings and facilities in line with the two or three modern bus terminals which have been built?

Rolling Stock

Missouri & Kansas Railway, Kansas City, Mo., has recently placed in service two new cars. Details of this equipment follow:

Date order was placed	March 16, 1925
Date of delivery	Aug. 14, 1925
Builder of car body	American Car Company
Type of car	Double truck electric motor passenger
Seating capacity	54
Total weight	33,000 lb.
Length over all	48 ft. 0 in.
Truck wheelbase	5 ft. 4 in.
Width over all	8 ft. 9½ in.
Height, rail to trolley base	12 ft. 0 in.
Body	All steel, wood floor
Interior trim	Mahogany
Headlining	¼-in. Agasote
Roof	Arch
Air brakes	Westinghouse Air Brake Company
Curtain fixtures	Rex
Curtain material	Double face Pantasote
Destination signs	Transparent Roller
Door operating mechanism	Air
Fare boxes	Cleveland
Hand brakes	One drop handle
Heater equipment	Peter Smith hot water
Headlights	Golden Glow R-M 128
Journal boxes	3¾x7 MCB
Motors	Four 35 hp., inside hung
Sash fixtures	Bronze
Seats	Spring cushion
Seating material	Plush, leather in smoker
Trolley catchers	Keystone
Trucks	Brill 77-E
Ventilators	8 Brill exhaust
Wheels	28-in. rolled steel

Seattle, Wash.—The lowest bid submitted to the city purchasing department for furnishing fourteen chassis for buses for the Seattle Municipal Railway was that of the International Truck at $1,790. The highest bid was for the Fageol truck at $4,775. No award has been made. Ten bids were submitted. The buses will have a carrying capacity of 21 passengers each.

St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., is remodeling three old two-man cars into the one-man type at its carhouse on St. Joseph Avenue. Officials state that by the end of the year there will be no two-man cars on the local system.

Municipal Railway, St. Petersburg, Fla., will purchase eight double truck cars at a cost of $100,000 if the bond issue calling for such purchase is approved at an election scheduled for Sept. 8.

Department of Street Railways, Detroit, Mich., has contracted for 64 new coaches from Dodge-Graham Company. Under contract the city will have six months in which to pay for the new equipment. They can be rented at 20 cents a mile whereas the city has previously paid 29 cents a mile. After three months, the city has the right to purchase them at a price of $3,802 a coach and the company has agreed to apply rentals to the purchase price.

Track and Line

Worcester Consolidated Street Railway, Worcester, Mass., has p'aced new tracks on the four lines leading from Main Street into Franklin Street.

Power Houses, Shops and Buildings

Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., is considering the erection of a railway station in Racine, Wis. It is considered certain that work on the new station will be started next year. The structure will be located on the land owned by the line at Washington Avenue and West Boulevard.

Indianapolis, Ind.—Work is to be started soon on the joint Indianapolis bus terminal station located in Indianapolis. The project will cost approximately $25,000. Some of the details of the plans were given in the ELECTRIC RAILWAY JOURNAL, issue of July 18, 1925, page 114.

Illinois Traction System, Champaign, Ill., has opened bids for a $75,000 garage on North Neil Street adjoining the carhouse to hold its buses, bus equipment and repair shops.

Trade Notes

India Tire & Rubber Company, Akron, Ohio, has appointed L. L. Barnbolt New York branch manager. Mr. Barnholt has served in the New York territory for several years as assistant branch manager.

Pierce-Arrow Motor Car Company, Buffalo, N. Y., reports bus production for the first seven months of this year show a 71 per cent increase over the same period in 1924.

American Cable Company, New York, N. Y., has appointed the firm of Bruntons, Musselburgh, to handle its general line, including Tru-lay wire rope and Tru-loc fittings, in Scotland. The Dominion Wire Rope Company, Montreal, is a new Canadian distributor. Other new distributors are: The Marion Machine, Foundry & Supply Company, Marion, Ind.; J. Shuman Hower, 106 Foster Building, Utica, N. Y.; the Contractors Equipment Company, 8 Steuben Street, Albany, N. Y., and John C. Louis, 221 South Eutaw Street, Baltimore, Md.

New Advertising Literature

Irving Iron Works Company, Long Island City, N. Y., has issued bulletin 4A-177 on Irving subway flooring.

General Electric Company, Schenectady, N. Y., has issued "Capacitors" a 24-page bulletin describing the value of this device in power factor correction on electric generating and distribution systems and for direct installation at motor terminals on low-voltage circuits. The bulletin bears the designation G. E. A.-77.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., as an addition to the loose-leaf set of electric locomotive data published by it, has now issued six additional pages devoted to the Baldwin-Westinghouse locomotives recently furnished to the Chilean State Railways and the Paulista Railways of Brazil. Each has one page devoted to it.